US Army Corps of Engineers®
Buffalo District

BUILDING STRONG®

NIAGARA FALLS STORAGE SITE
Formerly Utilized Sites Remedial Action Program

2012
ENVIRONMENTAL SURVEILLANCE TECHNICAL MEMORANDUM

January 2014

Table of Contents

EXECUTIVE SUMMARY vi

1.0 INTRODUCTION 1

1.1 Brief History of the Niagara Falls Storage Site 1

1.2 Overview of Environmental Surveillance Program 3

1.3 Regional Hydrogeology 4

1.3.1 Upper Water-bearing Zone 4
1.3.2 Gray Clay Unit 4
1.3.3 Lower Water-bearing Zone 4
1.3.4 Surface Water Drainage 5
1.3.5 Contaminant Transport Mechanism 5

2.0 REGULATORY GUIDELINES 7

2.1 Dose to the Public 7

2.2 Radioactive Constituents in Air 7

2.2.1 US Department of Energy Order 458.1 7
2.2.2 US Environmental Protection Agency Clean Air Act 7

2.3 Radioactive and Chemical Constituents in Groundwater 8

2.3.1 General Groundwater Quality 8
2.3.2 Federal Safe Drinking Water Act for Chemicals and Radionuclides 8
2.3.3 New York State Department of Environmental Conservation Groundwater Criteria for Chemicals and Radionuclides 9

2.4 Radioactive and Chemical Constituents in Sediment 9

2.4.1 Nuclear Regulatory Commission Dose-Based Screening Levels for Radionuclides 9
2.4.2 New York State Department of Environmental Conservation Unrestricted Use Recommended Soil Clean-up Objectives for Chemicals 9
2.4.3 USEPA Regional Screening Levels and NFSS Background Criteria for Metals 10

2.5 Radioactive and Chemical Constituents in Surface Water 10

3.0 SAMPLING LOCATIONS AND LABORATORY ANALYTICAL METHODS 11

3.1 Sampling Locations and Rationale 11

3.2 Laboratory Analytical Methods 11

4.0 ANALYTICAL DATA AND INTERPRETATION OF RESULTS 14

4.1 Air 14

4.1.1 External Gamma Radiation 14
4.1.2 Airborne Particulate Dose 14
4.1.3 Calculated Cumulative Dose 15

4.2 Radon Gas 15

4.3 Radon-222 Flux 16

4.4 Surface Water 16

4.4.1 Surface Water Radiological Findings 17
4.4.2 Surface Water Chemical Findings 18

4.5 Sediment 19

4.5.1 Sediment Radiological Findings 19

4.5.2 Sediment Chemical Findings 21

4.6 Groundwater **21**

4.6.1 Groundwater Level Measurements 22

4.6.2 Groundwater Field Parameters 23

4.6.3 Groundwater Quality Parameters 23

4.6.4 Groundwater Radiological Findings 23

4.6.5 Groundwater Chemical Findings 25

4.6.6 Groundwater Trend Analysis 26

5.0 CONCLUSIONS **29**

6.0 REFERENCES **30**

Appendix A 2012 Calculation of External Gamma Radiation Dose Rates for Niagara Falls Storage Site

Appendix B FUSRAP 2012 NESHAP Annual Report for NFSS

List of Tables (following text)

Table 1 Evolution of NFSS Environmental Surveillance Plan

Table 2 Groundwater Sampling Enhancements Initiated in 2010 (Fall)

Table 3 Surface Water and Sediment Sampling Enhancements Initiated in 2010 (Fall)

Table 4: 2012 External Gamma Radiation Dose Rates

Table 5: 2012 Radon Gas Concentrations

Table 6: 2012 Radon Flux Measurements

Table 7: 2012 Results of Radionuclide Analysis of Surface Water

Table 8: 2012 Results of Metals Analysis of Surface Water

Table 9: 2012 Results of VOC Analysis of Surface Water

Table 10: 2012 Results of PAH, PCB, and Pesticide Analysis of Surface Water

Table 11: 2012 Results of Radionuclide Analysis of Sediment

Table 12: 2012 Results of Metal Analysis of Sediment

Table 13: 2012 Results of VOC Analysis of Sediment

Table 14: 2012 Results of PAH, PCB, and Pesticide Analysis of Sediment

Table 15: 2012 Groundwater Level Measurements

Table 16: 2012 Groundwater Field Parameter Measurements

Table 17: 2012 Groundwater Water Quality Data

Table 18: 2012 Results of Radionuclide Analysis of Groundwater

Table 19: 2012 Results of Metal Analysis of Groundwater

Table 20: 2012 Results of VOC Analysis of Groundwater

CONTENTS (continued)

List of Figures

Figure 1: Site Location NFSS
Figure 2: Location of the IWCS within the NFSS Boundary
Figure 3: Schematic of Conceptualized Hydrostratigraphy
Figure 4: Locations of Radon Flux Measurements on the IWCS
Figure 5: ESP Groundwater Monitoring Wells
Figure 6: Location of RadTrack Detectors and OSLs
Figure 7: Location of Surface Water and Sediment Sampling Locations
Figure 8: External Gamma Radiation Dose Rates at NFSS Perimeter
Figure 9: External Gamma Radiation Dose Rates at IWCS Perimeter
Figure 10: Census Data
Figure 11: Total Radium Concentrations in Sediment between 1997 and 2012
Figure 12: Total Uranium Concentrations in Sediment between 1997 and 2012
Figure 13: Seasonal High Potentiometric Surface Map (Lower Groundwater System)
Figure 14: Seasonal High Potentiometric Surface Map (Upper Groundwater System)
Figure 15: Seasonal Low Potentiometric Surface Map (Lower Groundwater System)
Figure 16: Seasonal Low Potentiometric Surface Map (Upper Groundwater System)
Figure 17: Total Uranium Concentrations in Groundwater (except Well OW11B) Between 1997 and 2012
Figure 18: Total Uranium Concentrations in Groundwater in well OW11B Between 1997 and 2012

Acronyms and Abbreviations

AEC	Atomic Energy Commission
ALARA	as low as reasonably achievable
ASTM	American Society for Testing and Materials
CAP88-PC	Clean Air Act Assessment Package – 1988 (USEPA)
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Ci	curies
DoD	Department of Defense
DoD QSM	Department of Defense Quality Systems Manual for Environmental Laboratories
DOH	Department of Health
ESP	environmental surveillance program
ft	feet
FUSRAP	Formerly Utilized Sites Remedial Action Program
Gal	gallon
IWCS	interim waste containment structure
km	kilometers
LOOW	Lake Ontario Ordnance Works
MCL	maximum contaminant level
MDA	Minimal Detectable Activity
MED	Manhattan Engineer District
MEI	Maximally Exposed off-site Individual
m	meters
m^3	cubic meter(s)
µg/g	micrograms per gram
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/g	milligrams per gram
NCRP	National Council on Radiation Protection and Measurements
NESHAPs	National Emission Standards for Hazardous Air Pollutants (USEPA)
NFSS	Niagara Falls Storage Site
NTUs	nephelometric turbidity units
NRC	Nuclear Regulatory Commission
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OSL	optically stimulated luminescence
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
pCi/g	picocuries per gram
pCi/L	picocuries per liter
QA	quality assurance
QC	quality control
Ra-226	radium-226
RCRA	Resource Conservation and Recovery Act
SCO	soil clean-up objective
SDWA	Safe Drinking Water Act
TDS	total dissolved solids
TED	total effective dose
TOGS	Division of Water Technical and Operational Guidance Series
Th-230	thorium-230
U	Lab Qualifier – non-detect

Acronyms and Abbreviations (cont.)

U_3O_8	Triuranium Octoxide
USACE	United States Army Corps of Engineers
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

Units of Measurement and Conversion Factors - Radioactivity

Parameter	Conventional Units	SI Units	Conversion Factor
Dose	millirem (mrem)	milliSievert (mSv)	1 mrem = 0.01 mSv
Activity	picoCurie (pCi)	becquerel (Bq)	1 pCi = 0.037 Bq

Units of Measurement and Conversion Factors - Mass, Length, Area, and Volume

Parameter	SI Units	English Units	Conversion Factor
Mass	gram (g)	Ounce (oz)	1 g = 0.035 oz
	kilogram (kg)	Pound (lb)	1 kg = 2.2046 lb
Length	centimeter (cm)	Inch (in.)	1 cm = 0.394 in.
	meter (m)	foot (ft)	1 m = 3.281 ft
	kilometer (km)	mile (mi.)	1 km = 0.621 mi.
Area	hectare (ha)	acre	1 ha = 2.47 acres
Volume	milliliter (mL)	Fluid ounce (fl. oz.)	1 mL = 0.0338 fl. oz.
	liter (L)	gallon (gal)	1 L = 0.264 gal
	cubic meter (m^3)	Cubic yard (yd^3)	1 m^3 = 1.307 yd^3

EXECUTIVE SUMMARY

Purpose: The purpose of this technical memorandum is to document the scientific methods, criteria, data, and findings of the Environmental Surveillance Program (ESP) at the Niagara Falls Storage Site (NFSS). This program is executed by the U.S. Army Corps of Engineers (USACE) Buffalo District in support of our mission under the Formerly Utilized Sites Remedial Action Program (FUSRAP) to protect human health and the environment at the NFSS. This technical memorandum is published annually by the Buffalo District and is posted to the following USACE website under the "Environmental Monitoring" section: http://www.lrb.usace.army.mil/Missions/HTRW/FUSRAP/NiagaraFallsStorageSite.aspx.

Site Description and Background: The NFSS is located at 1397 Pletcher Road in the Town of Lewiston, NY, approximately 19 miles (30.6 km) north of Buffalo, NY. The NFSS is a federally-owned property that is 191 acres in size. The NFSS was originally part of a World War II explosives plant called the Lake Ontario Ordnance Works (LOOW) which was approximately 7,500 acres in size. Between 1944 and 1954 the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC) (a predecessor to the U.S. Department of Energy (USDOE)) brought radioactive wastes and residues to a small portion of the LOOW Site. Through the 1970s, the AEC gradually consolidated its operations and sold excess property to the public. In the 1980s, the USDOE constructed a 10-acre Interim Waste Containment Structure (IWCS) on the NFSS to contain the radioactive wastes and residues.

In 1974, the AEC instituted the FUSRAP and in October 1997, Congress transferred management of FUSRAP from the USDOE to the USACE. In addition to investigating and remediating site contaminants at the NFSS, the USACE has been given responsibility for maintaining the site and conducting the ESP. Environmental surveillance activities initiated in 1979 by the USDOE have evolved over the years to ensure that radioactive residues and wastes buried within the IWCS, as well as other on-site soil and groundwater contamination, do not pose a risk to human health and the environment. The program includes monitoring air, water, and sediments for radiological and chemical parameters.

In December 2007 and April 2011, the USACE Buffalo District completed a Remedial Investigation Report and Remedial Investigation Report Addendum, respectively, for the NFSS that defined the nature and extent of contaminants on the NFSS and assessed potential long-term risks associated with those contaminants. Based upon findings from these investigations and public input, the USACE further enhanced the ESP to monitor those protective engineered controls that are in place for the IWCS, to ensure that they are functioning properly.

Additional information about the site and the ESP is available on the USACE Buffalo District website: http://www.lrb.usace.army.mil/Missions/HTRW/FUSRAP/NiagaraFallsStorageSite.aspx.

Key Findings: The 2012 environmental surveillance analytical results confirm that site controls are continuing to perform as designed and are fully protective of human health and the environment.

To evaluate environmental surveillance data, USDOE, U.S. Environmental Protection Agency (USEPA), Nuclear Regulatory Commission (NRC), and New York State Department of Environmental Conservation (NYSDEC) criteria, standards, and guidelines are used for comparison purposes. Results of the 2012 surveillance program are fairly consistent with previous years and show:

- NFSS-related radiation is considerably below the USDOE maximum allowable dose rates to the public. Radiological findings for external gamma radiation, radon gas and airborne particulate dose are consistent with results from previous years. Site radon-222 and radon-222 flux measurements taken on the IWCS were below the USDOE off-site limit of 3.0 pCi/L and the flux standard of 20 pCi/m^2/s, respectively. The calculated dose to a receptor due to airborne particulates is below the USEPA guideline of 10 millirem/year (excluding radon), and the cumulative dose,

which is calculated by adding the maximum external gamma dose to the maximum airborne particulate dose, is significantly less than the USDOE limit of 100 millirem/year.

- Several metals and a couple of pesticides in surface water exceeded the New York State (NYS) Class B Surface Water Criteria.

- Several metals, volatile organic compounds (typical laboratory contaminants), pesticides, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls (one sample) in sediment exceeded criteria.

- Total uranium concentration in six groundwater monitoring wells, several metals in all groundwater monitoring wells, and volatile organic compounds (chlorinated solvents) in a few groundwater monitoring wells located in the northern portion of the site exceeded drinking water criteria.

The 2012 groundwater analytical data showed that total uranium concentrations in six groundwater monitoring wells exceeded the drinking water standard. All six wells are screened in the upper water bearing zone; four (A42, OW04B, OW11B, and OW12B) are located in the vicinity of the IWCS and two (302A and MW313) are situated towards the northeastern boundary of the site. Among these wells, the highest total uranium concentrations (353 µg/L and 210 µg/L) were detected in well OW11B.

The source of the uranium in well OW11B is believed to be residual soil contamination from former operations in this area, which included a railroad bed, storage piles, and a decontamination pad used during construction of the IWCS. In the fall of 2012, USACE performed an investigation (which included test pits and new monitoring wells) in the vicinity of well OW11B to locate the source of this groundwater contamination. Additional field work in this area is planned for the fall of 2013.

A trend analysis for total uranium in groundwater was performed for all of the monitoring wells in the ESP and the results showed no increasing or decreasing trends in 34 of the 39 wells; a decreasing trend in wells A45, OW06B, OW18B and 201A; and an increasing trend in well B02W20S. Most noteworthy in this year's trend analysis is the result for well OW11B. Previously, well OW11B had exhibited an increasing trend; however with the inclusion of 2012 sampling data, this determination is no longer supported.

It is important to note that ESP groundwater sampling results are compared to federal and state drinking water standards as a conservative basis for evaluation. Most groundwater at the NFSS classifies as GSA saline groundwater and is neither used nor suitable as a public drinking water supply, based on analytical results for iron, sodium and sulfates that are found to be consistently above NYSDEC groundwater standards.

1.0 INTRODUCTION

The Niagara Falls Storage Site (NFSS) is being addressed by the U.S. Army Corps of Engineers (USACE) as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP), in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended. The site is located in the town of Lewiston, New York, north of Buffalo (Figure 1).

The USACE Buffalo District conducts an environmental surveillance program (ESP) and performs site operations, maintenance, and monitoring to ensure protection of human health and the environment. These activities are ongoing across the site, including at the Interim Waste Containment Structure (IWCS), which contains radiologically contaminated materials from cleanup actions conducted by the U.S. Department of Energy (USDOE) more than 20 years ago. The ESP is the focus of this report.

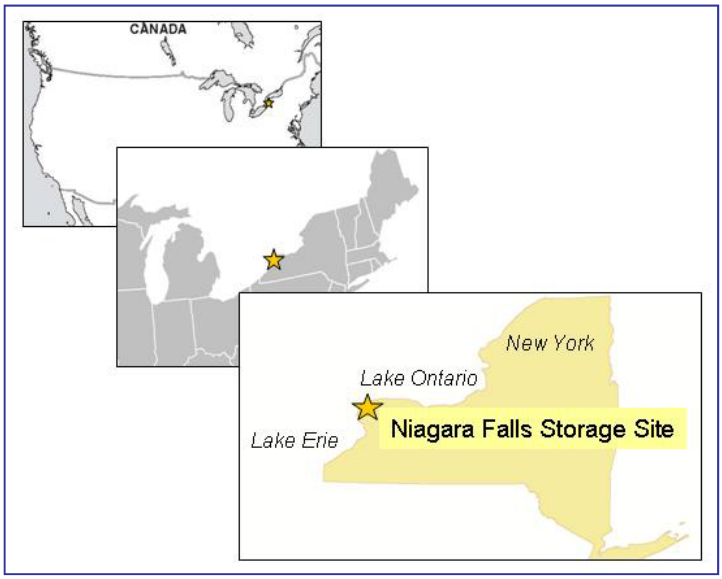


Figure 1: Location of Niagara Falls Storage Site

1.1 Brief History of the Niagara Falls Storage Site

The NFSS represents a portion of the former Lake Ontario Ordnance Works (LOOW) that was used by the USACE Manhattan Engineer District (MED) and U.S. Atomic Energy Commission (AEC) to store radioactive residues and other materials beginning in 1944. Nearly all the radioactive residues in the IWCS at NFSS originated from uranium processing activities conducted for MED and AEC at two locations: the Linde Air Products facility in Tonawanda, New York, and the Mallinckrodt Chemical Works refinery in St. Louis, Missouri. Other residues (called F-32) were generated from past processing activities at the Middlesex Sampling Plant in New Jersey.

The first materials sent to NFSS for storage were low-grade radioactive residues from processing pitchblende ore at the Linde Air Products facility. These residues resulted from processing ores with different uranium (U_3O_8) contents, and they are categorized as follows:

- R-10 residues: from processing ore with 3.5% U_3O_8,
- L-30 residues: from processing ore with 10% U_3O_8,
- L-50 residues: from processing ore with 7% U_3O_8, and
- F-32 residues: from processing ore (percent U_3O_8 unknown).

Beginning in 1949, highly radioactive residues from uranium processing at the Mallinckrodt Chemical Works – referred to as the K-65 residues – were shipped to NFSS in 208-L (55-gal) drums for storage. The uranium ore from which these residues were generated contained 35 to 60% U_3O_8. These K-65 residues were subsequently transferred from the 208-L (55-gal) drums to a large concrete tower onsite, referred to as Building 434, from 1950 to 1952. The residues remained in Building 434 until the 1980s when they were transferred by USDOE to the IWCS. The K-65 residues represent the main hazard at the IWCS.

Uncontained, the high levels of Ra-226 in these residues would emit substantial external gamma radiation and release radon-222 (Rn-222) gas to air. Without controls, the doses from external gamma irradiation and inhalation of Rn-222 progeny could harm anyone nearby.

In addition to these residues, radioactive wastes from a number of other federal government programs were sent to NFSS decades ago for storage or disposal. These included radioactive wastes from two locations in the state of New York (Knolls Atomic Power Laboratory in Schenectady and the University of Rochester) and the Middlesex Sampling Plant in New Jersey. Radioactively contaminated materials from decommissioning wartime plants were also sent to the site for storage, including equipment from the Linde facility. Uranium and thorium billets and rods processed at other private facilities were also sent to NFSS for interim storage.

From 1981 to 1991, USDOE performed a number of cleanup activities at the site and nearby areas, which are termed vicinity properties. The radioactive materials generated by these activities were placed in an engineered structure on the west side of the NFSS property, the IWCS (Figure 2). Within the IWCS, the more highly contaminated residues (K-65, L-30, L-50, and F-32) were placed in existing concrete structures that had been part of the freshwater treatment plant for the LOOW site during the 1940s. The L-50 residues were placed in Buildings 413 and 414, which are cylindrical structures made of reinforced concrete that had been used as clarifier tanks at the treatment plant. The remaining residues were placed in several bays of Building 411 that was made of reinforced concrete and was originally designed to securely hold liquids.

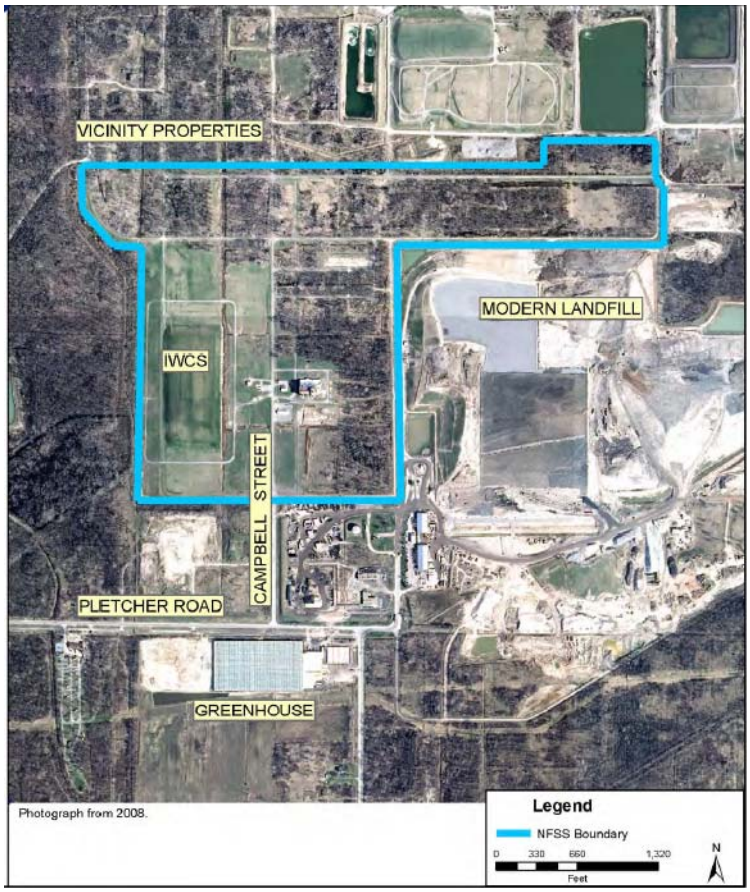


Figure 2: Location of the IWCS within the NFSS Boundary

Contaminated soil and debris from the USDOE cleanup of the site and vicinity properties were placed together with the R-10 residues within the IWCS and then compacted to increase stability. Soils that were contaminated by the K-65 residues during interim storage, referred to as tower soils, were placed in the north end of Building 411. The USDOE addressed the R-10 residues in the same manner as contaminated soil due to their similar radionuclide concentrations. Additional contaminated soils and debris were placed in the remaining areas of the IWCS in a manner to ensure the stability of the structure.

The IWCS was constructed by installing a clay dike and cutoff wall around the areas containing all the consolidated wastes. The dike and wall were built while USDOE was conducting interim remedial actions at the site, and the wall was tied into the underlying clay formation. A multi-layered cap was placed over the contents after the cleanup actions were completed. These past USDOE actions are described in further detail in the Remedial Investigation Report (USACE 2007) and the references cited therein.

In September 1986, USDOE issued a record of decision under the National Environmental Policy Act to store the consolidated residues and other contaminated materials in the IWCS at the NFSS. That record of

decision identified the IWCS as an acceptable interim solution, with a projected service life of 25 to 50 years. This represented the time frame during which the IWCS was considered safe for containing the radioactive residues and other wastes until a decision on their final disposition could be made. The service life of 25 to 50 years identified in the record of decision specifically applies to the IWCS cap; the design service life of the clay dike and cutoff walls surrounding the IWCS and the natural glaciolacustrine clay beneath the IWCS was identified as 200 to 1,000 years by Bechtel National, Inc. (BNI) (BNI 1986).

1.2 Overview of Environmental Surveillance Program

The ESP at the NFSS was initiated by the USDOE in 1979 prior to the construction of the IWCS. Air, water, and external gamma radiation (and later streambed sediments) were monitored to ensure protection of human health and the environment from radioactive residues and wastes subsequently buried in the IWCS, as well as other on-site soil and groundwater contamination. In 1997, when responsibility for FUSRAP was transferred to the USACE, the USACE Buffalo District continued to follow the USDOE ESP with some revisions over the years. The USACE reports its findings annually in the form of this technical memorandum, which are posted to the NFSS website at: http://www.lrb.usace.army.mil/Missions/HTRW/FUSRAP/NiagaraFallsStorageSite.aspx.

The surveillance program has been designed to achieve the following objectives:

- to ensure protection of human health and the environment
- to verify compliance with environmental regulatory standards
- to verify that the IWCS is performing as designed

To meet these objectives, USACE monitors environmental media and regularly reassesses the adequacy of the program, making the necessary adjustments to the program, as warranted. Several modifications have been made to the surveillance program over time. These changes are identified on Tables 1, 2, and 3, which show that the latest enhancements to the ESP were implemented during the fall of 2010.

Currently, the ESP is comprised of the following sampling activities:

- Annual radon-222 monitoring through the placement of 183 radon flux canisters on the IWCS protective cap and at background locations.
- Semi-annual radon monitoring through the placement of detectors at 26 locations around the IWCS, site perimeter, and off-site.
- Semi-annual external gamma radiation monitoring through the placement of detectors at 26 locations around the IWCS, site perimeter, and off-site.
- Semi-annual surface water and sediment sampling at a total of 11 points along the West Drainage Ditch, Central Drainage Ditch, and east (upstream) of the Central Drainage Ditch; one location in the Central Drainage Ditch is sampled on a quarterly basis.
- Semi-annual groundwater monitoring of 39 monitoring wells for radionuclides, metals, anions, and water quality parameters; four of these wells are also monitored for volatile organic compounds (VOCs); two wells are sampled on a quarterly basis.
- Quarterly water level measurements in 101 monitoring wells throughout the site to monitor the groundwater flow directions in the upper and lower water-bearing zones.

In addition to the collection and analysis of environmental samples, the ESP includes the calculation of dose to off-site receptors from airborne emissions of site soils using annual weather data collected at the Niagara Falls International Airport by the National Weather Service. The dose to off-site receptors based on gamma radiation measurements is also calculated and summed with the airborne emissions dose to determine the cumulative dose to the public from the NFSS.

1.3 Regional Hydrogeology

Within 50 feet of the ground surface, the NFSS and surrounding vicinity are underlain by two water-bearing zones separated by an aquitard or confining unit. The two water-bearing zones are identified as the upper water-bearing zone and the lower water-bearing zone and are described in more detail below.

1.3.1 Upper Water-bearing Zone

The upper water-bearing zone is present in the surficial Brown Clay Unit, which is situated above the Gray Clay Unit (Figure 3). The Brown Clay Unit consists of a clayey silt and silty clay groundmass with occasional sand and gravel lenses. Coarse-grained deposits are present sporadically along the undulating contact between the Brown Clay Unit and the Gray Clay Unit. A geostatistical analysis of these coarse grained lenses in the upper water-bearing zone was performed to assess their continuity or whether they act as preferential migration pathways for contamination. Lithologic information from boring logs was spatially analyzed using semivariogram calculations and models. The results suggest the sand lenses in the upper water-bearing zone are intermittent and vertically and horizontally discontinuous, vary considerably in thickness, color, texture, extent, and saturation, and are not horizontally continuous over distances greater than 15 to 20 feet (4.57 to 6.1 meters) and vertical distances of 4 to 6 feet (1.22 to 1.83 meters). As a result, the occurrence of groundwater varies across the site (i.e., proximate wells may have noticeably different water levels depending on sand lens presence or not).

The horizontal hydraulic conductivity of the upper water-bearing zone, estimated from field (slug) tests and laboratory tests, ranges from 3×10^{-2} to 7×10^{-9} cm/sec, with most values in the range of 1×10^{-5} to 1×10^{-7} cm/sec. Horizontal conductivity values for wells screened in the sand lenses are typically higher than wells in the silty clay (a range of 9.5×10^{-7} to 1.27×10^{-2} cm/s is evident).

Vertical hydraulic conductivity values for the Brown Clay Unit were reported to be 6×10^{-7} cm/sec, which reflects the fine grained lithology.

Regional groundwater flow in the upper water-bearing zone is to the northwest towards Lake Ontario. The average horizontal gradients (or downward slope of the groundwater surface) in the upper water-bearing zone typically range between 0.0012 and 0.0074 ft/ft; the gradient varies seasonally and with the scale of the measurement (i.e., regional flow across the site versus near the Central Drainage Ditch). This gradient reflects the flat lake plain environment surrounding the site.

1.3.2 Gray Clay Unit

Underlying the Brown Clay Unit is the Gray Clay Unit, which consists of glacio-lacustrine clay and acts as an aquitard that separates the upper water-bearing zone from the lower water-bearing zone (Figure 3). For purposes of classification, wells that terminate in the Gray Clay Unit are considered representative of the upper water-bearing zone. The Gray Clay Unit hydraulically separates the upper and lower water-bearing zones and minimizes transport between the two zones.

1.3.3 Lower Water-bearing Zone

The lower water-bearing zone consists of unconsolidated glacial sediments (Alluvial Sand and Gravel and Red Silt Till) that overlie the upper fractured portion of the Queenston Formation (Figure 3). A regional groundwater divide (the Lockport Escarpment) exists approximately two miles south of the NFSS. Regional groundwater flow north of the divide is toward the northwest, whereas groundwater flow south of the divide is toward to the southwest.

The lower water-bearing zone extends from the bottom of the Gray Clay Unit to the bottom of the weathered zone of the Queenston Formation. The entire zone varies from 10 feet to 38.5 feet (3.05 to 11.73 meters) in thickness and consists of the stratified sands and gravels of the Alluvial Sand and Gravel Unit, the dense silt and sands of the Red Silt Unit, and the weathered and fractured upper portions of the Queenston Formation, which is observed in the upper 10 feet of the bedrock. The lower water-bearing zone has higher permeability and more lateral continuity than the upper water-bearing zone.

In the Alluvial Sand and Gravel Unit, the horizontal hydraulic conductivity ranges from 1.3×10^{-3} to 9×10^{-6} cm/sec. Well yields in the lower water-bearing zone are less than seven gallons per minute in the fractured portion of the Queenston Formation, which is consistent with observed hydraulic conductivities that geometrically average 2.2×10^{-5} cm/sec. The potential for contamination of this zone is limited due to the presence of the confining Gray Clay Unit and Red Silt Unit (where present) and the relatively low permeability of the Queenston Shale. In addition, documents suggest an upward vertical gradient at locations where the Red Silt Unit is absent. Based on NFSS boring logs, the Red Silt Unit is absent from at least six boreholes at scattered locations suggesting this limiting factor may be of only local significance at NFSS.

The lower water-bearing zone generally shows a westerly to northwesterly flow with gradients varying typically between 0.002 to 0.0043 ft/ft. The gradient is more uniform in the lower zone and does not show flow perturbations that were previously observed from the mining of the Glaciolacustrine Clay west of the NFSS. By comparing historical potentiometry to current data, the local landfill operations (e.g., Modern and Chemical Waste Management) are not influencing flow patterns in the lower water-bearing zone under the NFSS.

1.3.4 Surface Water Drainage

Prior to site development, surface drainage from the NFSS entered Four Mile, Six Mile, and Twelve Mile Creeks, which all flow northward to Lake Ontario. During the 1940s, drainage modifications routed surface water to a series of linear ditches that eventually coalesce into the Central Drainage Ditch north of the site. The Central Drainage Ditch enters into Four Mile Creek approximately 3 miles northwest of the NFSS. The vegetation that grows in the on-site ditches during the summer months dewaters the ditches via evapotranspiration between rainfall events. Groundwater elevations in wells proximal to the ditches are notably lower throughout the summer and early fall due to higher localized evapotranspiration (i.e., the wetland vegetation in and along the ditches creates a significant moisture deficit in the surrounding soils). Low baseflow conditions in the site ditches between rainfall events also indicate that groundwater does not significantly discharge into the ditches (i.e., surface drainage is the main contributor to flow).

Localized on-site flow towards the Central Drainage Ditch east of the IWCS is consistently apparent due to the unique flow boundary conditions in this area (i.e., IWCS cut-off wall, low recharge due to a sloped [well drained] land surface, and proximate ditch). Other site ditches show various degrees of influence on groundwater levels, which are accounted for on the potentiometric map, where data allow. The drainage ditches at the NFSS have accumulated sediment and organic matter since their original installation; up to 10 feet of material may be present in some on-site ditches. Consequently, the ditches do not fully penetrate the upper water-bearing zone and some groundwater may pass beneath the ditches during prolonged high-groundwater periods. This flow would be seasonally interrupted by evapotranspiration stresses during the growing season.

1.3.5 Contaminant Transport Mechanism

A groundwater flow velocity of 38 cm/y (15 in/y) was estimated at the NFSS in 1994 (USDOE 1994). More recent Remedial Investigation modeling estimated average flow velocities between 0.05 ft/yr and 0.3 ft/yr (USACE 2007). Such velocities will vary based on local conditions (i.e., the spatial scale of hydraulic

conductivity and gradient estimations used). These velocity values do not represent contaminant migration rates since contaminant-soil partitioning retards (or slows) the rate of contaminant flow (transport) with respect to groundwater flow. This partitioning causes contaminants to adsorb, or bind, to local fine-grained soils in the upper water-bearing zone and aquitard sediments.

Vertical gradients derived from heads in monitoring well pairs usually vary with seasonality and show flow from the upper zone to the lower zone dominating the first, second, and fourth quarterly measurements. However, during third quarter, nearly half of the groundwater elevations in the lower system were greater than those measured in the upper system. This seasonal variation in the direction and magnitude of vertical gradients will affect vertical flow between water-bearing zones and the long-term transport potential of contaminants between water-bearing zones, thereby maintaining the upper zone as the primary transport pathway at the NFSS.

In summary, the flow in the upper water-bearing zone is governed by low horizontal and vertical gradients interrupted by seasonal dewatering from evapotranspiration, which further limits advection; horizontal flow is enhanced locally by non-contiguous sand lenses. The groundwater flow in the lower water-bearing zone is predominantly horizontal due to confining gray clay or glacio-lacustrine clay unit that also mitigates the vertical transport of contaminants from the upper water-bearing zone. These hydrologic mechanisms, along with soil partitioning, limit the movement of potentially soluble contaminants in the upper water bearing zone, which is apparent through the proximity of groundwater impacts to historical sources. Most impacts are characterized by small plumes proximate to their historical sources (e.g., residue storage areas, operational corridors, or residue runoff areas) rather than large-scale contiguous plumes of distinctive concentration gradients advancing from distal sources.

2.0 REGULATORY GUIDELINES

The criteria in federal statutes and federal and state regulations and guidelines that are relevant to activities at the NFSS site are compared to ESP analytical data. However, the standards and criteria provided herein are for comparative purposes only; applicable or relevant and appropriate requirements and media-specific clean-up goals will be evaluated independently and presented in future CERCLA decision documents that will be available for public comment. Details are provided in the following sections.

2.1 Dose to the Public

The annual public dose limit from sources of radiation (excluding radon) is 100 millirem (mrem) above background. This standard is used by the Army, the USDOE, and the Nuclear Regulatory Commission (NRC). This limit is stated in Army Pamphlet 385-24, "The Army Radiation Safety Program," USDOE Order 458.1, "Radiation Protection of the Public and the Environment" (USDOE 2011), and NRC 10 CFR Part 20 "Standards for Protection Against Radiation."

Doses from sampled media and external gamma can be combined and compared to the public annual dose limit of 100 mrem. For purposes of this document, the maximum off-site dose to a receptor is calculated from the total of the external gamma dose and the internal dose from airborne materials.

2.2 Radioactive Constituents in Air

2.2.1 US Department of Energy Order 458.1

USDOE limits for radon concentrations in air from operations at USDOE-owned and USDOE-operated facilities are presented in Order 458.1. Based on the radioactive constituents in the wastes contained in the IWCS, it is unlikely that radon-220 would be emitted from the IWCS since the radon-220 half-life is approximately 55.6 seconds and this isotope would decay prior to permeating through the IWCS cap. It is, however, possible that radon-222 with a half-life of 3.8 days could be emitted. The USDOE limit for an annual average radon-222 concentration at the site boundary, not including background, is 3.0 pCi/L. To provide a conservative basis for comparison, on-site radon concentrations are evaluated against the site boundary limit of 3.0 pCi/L.

2.2.2 US Environmental Protection Agency Clean Air Act

The USEPA guidance action level for radon concentrations in indoor air (homes and buildings) is 4.0 pCi/L. Although this limit is specific to indoor air, it provides a conservative basis for comparison to the outdoor air results obtained during environmental surveillance activities. For further comparison, the average radon level in U.S. homes is about 1.25 pCi/L and the average outdoor value is 0.4 pCi/L (NCRP 2009).

Section 112 of the Clean Air Act authorized the USEPA to promulgate the National Emission Standards for Hazardous Air Pollutants (NESHAPs) which are provided in 40 Code of Federal Regulations (CFR) Part 61. 40 CFR Part 61 Subparts H and Q apply to the NFSS and are summarized below:

- 40 CFR 61.92, Subpart H, National Emission Standards for Emissions of Radionuclides Other Than Radon from USDOE Facilities: Emissions of radionuclides to the ambient air from USDOE facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem per year.
- 40 CFR 61.192, Subpart Q, National Emission Standards for Radon Emissions from USDOE Facilities: No source at a USDOE facility shall emit into the air more than 20 picocuries per square

meter per second (pCi/(m2-sec)) (1.9 pCi/(ft2-sec)) of radon-222 as an average for the entire source.

At the NFSS, USACE demonstrates compliance with 40 CFR 61.92 (Subpart H) by running the USEPA-approved CAP88-PC air dispersion model with site-specific input values, such as average radionuclide concentrations in soil and average annual wind speed data. Compliance with 40 CFR 61.192 (Subpart Q) is verified by annual monitoring of the IWCS cap for release of radon-222 flux.

2.3 Radioactive and Chemical Constituents in Groundwater

2.3.1 General Groundwater Quality

Shallow groundwater resources at NFSS demonstrate uniformly poor groundwater quality and availability in the general region. Regional studies and studies conducted near the site (La Sala 1968, Wehran 1977, and Acres American 1981) conclude that local groundwater quality is poor because of high mineralization. Additionally, local studies (Wehran, 1977 and Acres American 1981) indicate that the low permeability of the upper water bearing zone does not provide sustainable production quantities to standard wells for water supply use. On-site permeability testing at NFSS confirms the low permeability.

In 1988, the USDOE conducted a well survey and found eight wells within three miles (4.8 km) of the site. These eight wells are used mainly for irrigation and none of them are drinking water wells (USDOE 1994).

In 2007, the Niagara County Department of Health (DOH) updated its well inventory to include 9 potable wells (2 of which were a sole source for drinking water), 8 non-potable wells, 20 abandoned wells and 77 idle wells within the survey area. Based on the USDOE report and the recent Niagara County DOH inventory, groundwater is not the main source of drinking water; however, the New York State Department of Environmental Conservation (NYSDEC) Class GA groundwater standards are conservatively used to compare to ESP groundwater analytical results. Groundwater at the NFSS in both the upper and lower water-bearing zones consistently exceeds sodium and sulfate Class GA standards, exhibiting over 1000 mg/L Total Dissolved Solids (TDS) and commonly exhibiting over 100 mg/L chloride. By definition, these levels indicate saline groundwater or a groundwater classification GSA (Title 6 New York Codes of Rules and Regulations (6 NYCRR) Part 701.16).

2.3.2 Federal Safe Drinking Water Act for Chemicals and Radionuclides

The Safe Drinking Water Act (SDWA) is the primary federal law applicable to the operation of a public water system and the development of drinking water quality standards [*USEPA Drinking Water Regulations and Health Advisories* (*USEPA* 1996)]. The regulations in 40 CFR Part 141 (National Primary Drinking Water Regulations) set maximum permissible levels, known as maximum contaminant levels (MCLs), for organic, inorganic, radionuclide (including uranium and combined radium) and microbial contaminants in drinking water.

The established (promulgated) MCL for combined concentrations of radium-226 and radium-228 is 5 pCi/L. The MCL for total uranium is 30 µg/L (or approximately 27 pCi/L). The sum of thorium-228, -230 and -232 are compared to an adjusted gross alpha MCL of 15 pCi/L excluding radon and uranium.

Among the new parameters added to the ESP in the fall of 2010, only plutonium-238 and -239/240 are alpha emitters and are included in the 15 pCi/L MCL. The remaining parameters are beta emitters. The MCL for beta emitters is provided in terms of a dose, 4 mrem per year, that is converted to a concentration using an assumed drinking water rate. The concentrations derived to meet 4 mrem/year are calculated consistent with the December 2000 rulemaking for the National Primary Drinking Water Regulations for Radionuclides and are as follows:

- strontium-90, 8 pCi/L
- tritium, 20,000 pCi/L
- cesium-137, 200 pCi/L
- technetium-99, 900 pCi/L

2.3.3 New York State Department of Environmental Conservation Groundwater Criteria for Chemicals and Radionuclides

NYSDEC has adopted the federal SDWA standards into its own regulations in 6 NYCRR Parts 700-705, "Water Quality Regulations for Surface and Groundwater" (NYSDEC 1996). In addition, NYSDEC has independently established standards for some constituents. These standards are provided in the Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations."

In addition, the New York State DOH, per 10 NYCRR Part 5, Subpart 5-1, establishes a 4 mrem per year maximum allowable dose for manmade radionuclides and a 30 µg/L MCL for uranium. It is noted that these standards apply to community water systems, which is not applicable to groundwater at the site. Furthermore, since they are identical to the federal SDWA criteria, only NYS criteria are referenced in the analytical results tables discussed in Section 4.0.

2.4 Radioactive and Chemical Constituents in Sediment

ESP sediment analytical results are compared to federal and state guidelines and standards, as well as site-specific background screening levels. Details are provided in the following sections.

2.4.1 Nuclear Regulatory Commission Dose-Based Screening Levels for Radionuclides

Sediment analytical results are compared to surface soil screening levels (or dose-based screening levels) presented in NRC document NUREG-1757 (NRC 2006). This document provides guidance on compliance with radiological criteria for NRC license termination in accordance with 10 CFR 20, Subpart E. These surface soil screening values require that the radiological dose to a member of the public using the site for any purposes, including farming, is less than 25 mrem/year. The use of these dose-based screening levels is overly protective to human health because actual exposures to sediment would be much lower than the intense and chronic exposure assumed in developing these screening values. Furthermore, these screening values are in addition to background concentrations (i.e., do not include background concentrations) so where available, background concentrations have been added to the dose-based screening level for comparison to sediment results.

2.4.2 New York State Department of Environmental Conservation Unrestricted Use Recommended Soil Clean-up Objectives for Chemicals

New York State regulatory criteria found in 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs) are compared to sediment analytical data for VOCs, polycyclic aromatic hydrocarbons (PAHs), pesticides, and polychlorinated biphenyls (PCBs). When appropriate, Restricted Use (Residential or Industrial) SCOs are also cited for comparison to results. Unrestricted Use SCOs from 6 NYCRR 375 for certain PAHs constituents are based on a survey of soil background concentrations performed in New York State. It should be noted that sediment background concentrations would differ from soil background in many instances.

2.4.3 USEPA Regional Screening Levels and NFSS Background Criteria for Metals

For some of the more common metals, such as aluminum, calcium, and sodium, among others, there are no NYSDEC SCOs. Therefore, the analytical data for these metals are compared to USEPA Regional Screening Levels (RSLs) for soil (May 2013) (residential receptor). In the event that a NFSS background screening level found in Table 13-1 of the NFSS Remedial Investigation Addendum Report (USACE 2011) is greater than its corresponding RSL, the background screening level is selected for comparison.

2.5 Radioactive and Chemical Constituents in Surface Water

Surface water samples collected from site drainage ditches are compared to NYSDEC standards presented in 6 NYCRR Part 703 Surface Water and Groundwater Quality Standards for Class B water aquatic life. NYSDEC Class B water classification is utilized because the on-site Central Drainage and West Drainage Ditches discharge into Four Mile Creek, which is classified by New York State as a Class B water source (USACE, 1999). If a standard for Class B water is not available for a specific parameter, the corresponding standard for groundwater or Class A water is used, as appropriate.

A review of NYS (both NYSDEC and NYS DOH) standards for radionuclides indicates that they are identical to the federal SDWA criteria. For example, per TOGS 1.1.1, the criteria for radium-226 and radium-228 is 5 pCi/L and thorium (alpha emitter) is 15 pCi/L; and per 10 NYCRR Part 5, Subpart 5-1, the maximum dose for manmade radionuclides (beta emitters) is 4 mrem and the criteria for uranium is 30 µg/L. NYS also provides a standard for radium-226 only, which is 3 pCi/L. Since these NYS Standards are identical to federal SDWA criteria and they provide a standard for radium-226, only NYS criteria are presented in the results tables.

Surface water collected in the drainage ditches at the site is not a source of drinking water, so the ESP analytical results are conservatively compared to the NYS standards for radionuclides, which are applicable to public water systems that provide drinking water to communities, and to standards for Class A surface water, which is considered a source of drinking water.

3.0 SAMPLING LOCATIONS AND LABORATORY ANALYTICAL METHODS

3.1 Sampling Locations and Rationale

The purpose of the ESP is to ensure the protection of human health and the environment by monitoring the IWCS, as well as other site media, for the release of hazardous constituents.

To monitor the integrity of the IWCS, USACE collects:

- Annual radon-222 flux data through the placement of 180 radon flux canisters on the IWCS protective cap at discrete grid intersections and at three off-site (background) locations, shown on Figure 4;
- Semi-annual groundwater samples from 30 monitoring wells (13 wells screened in the lower water-bearing zone and 17 screened in the upper water-bearing zone) located in the vicinity of the IWCS (two wells are sampled on a quarterly basis) at the locations shown on Figure 5; and
- Semi-annual radon and external gamma radiation samples by placing Radtrak® detectors and optically stimulated luminescence (OSL) dosimeters, respectively, at seven locations around the perimeter of the IWCS, as shown on Figure 6.

In addition, USACE collects:

- Semi-annual groundwater samples from nine monitoring wells screened in the upper water-bearing zone at the locations shown on Figure 5 (note that well MW922 is sampled only if well MW921 is dry);
- Semi-annual radon and external gamma radiation samples by placing Radtrak® detectors and OSL dosimeters, respectively, at 16 locations within and around the perimeter of the site and at three off-site (background) locations, as shown on Figure 6; and
- Semi-annual surface water and sediment sampling from a total of 11 locations shown on Figure 7 along the West Drainage Ditch, Central Drainage Ditch, and east (upstream) of the Central Drainage Ditch (one location is sampled on a quarterly basis);
    - SWSD009, SWSD021, SWSD023 and SWSD024 were selected as “upstream” locations because they are located at the site boundary where surface water flows on to NFSS from offsite;
    - SWSD010, SWSD011, SWSD022, and SWSD025 are situated along the Central Drainage Ditch; and,
    - WDD1, WDD2, and WDD3 are located along the West Drainage Ditch.

In addition, USACE performs quarterly water level measurements in 101 monitoring wells throughout the site to monitor the groundwater flow directions in the upper and lower water-bearing zones (Figures 13 and 14).

3.2 Laboratory Analytical Methods

The laboratory analytical methods associated with the groundwater, surface water, and sediment samples described above are presented in the following table:

Parameter	Analytical Method	
	Groundwater and Surface Water	**Sediment**
Volatile Organic Compounds	SW 846 8260	SW 846 8260
Pesticides	SW 846 8081	SW 846 8081
Polychlorinated Biphenyls	SW 846 8082	SW 846 8082
Polycyclic Aromatic Hydrocarbons	SW 846 8270	SW 846 8270
Metals	SW 846 6020, 7470	SW 846 6020, 7470
Cesium-137	EPA 901.1m	EPA 901.1m
Plutonium-238, 239/240, Iso-uranium* Iso-thorium	HASL-300m	HASL-300m
Total uranium	ASTM D5174.97, Trace Uranium by Pulsed Laser Phosphorimetry	---
Strontium-90	ASTM D5811-95	ASTM D5811-95
Technitium-99	RP-550m	RP-550m
Tritium	EPA 906.0	RP-580
Radium-226	EPA 903.1	EPA 901.1m
Radium-228	EPA 904	EPA 901.1m
Anions • **Chloride** • **Fluoride** • **Nitrate/Nitrite** • **Ortho-phosphate** • **Sulfate**	EPA 300.0	
Water Quality • **Alkalinity** • **Total Dissolved Solids**	SM-2320B SM-2540C	

*Only the 1st quarter water samples were analyzed for isotopic uranium; all other water samples were analyzed for total uranium.

Standard analytical methods approved and published by USEPA and the American Society for Testing and Materials (ASTM) are used for chemical (i.e., all non-radiological) analyses. The laboratories conducting the radiological analyses adhere to USEPA, National Urban Security Technology (formerly the Environmental Measurements Laboratory) and ASTM standard methods. Radiological and chemical laboratories are accredited through the Department of Defense (DoD) Environmental Laboratory Accredited Program (ELAP). That accreditation is based on conformance to the DoD Quality Systems Manual (DoD QSM) for Environmental Laboratories.

All environmental surveillance activities at the NFSS are conducted in accordance with the following documents:

- EPA/540/S-95/504, Groundwater Issue Low Flow (Minimal Drawdown) Groundwater Sampling Procedures;
- EM 1110-2-1421, Groundwater Hydrology;
- ASTM D5608-10, Standard Practices for Decontamination of Field Equipment Used at Low Level Radioactive Waste Sites; and
- Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP).

4.0 ANALYTICAL DATA AND INTERPRETATION OF RESULTS

The 2012 ESP groundwater, surface water, sediment, airborne particulate, radon, and gamma radiation data are presented and evaluated in this section. It is important to note that analytical results for radioactive constituents may be expressed as negative numbers. Negative numbers can occur when the average background activity of the laboratory counting instrument exceeds the measured sample activity because the background activity is subtracted from the measured sample activity to calculate the analytical result. Furthermore, for the purpose of interpretation, all values below the laboratory's minimum detectable activity (MDA) are interpreted as having unknown values between zero and the MDA, and are referred to herein as non-detects.

4.1 Air

To establish the annual dose to the public from radiological sources in air, doses at specific off-site receptor locations are determined by combining (1) the calculated external gamma radiation doses based on gamma radiation dose measurements taken at the NFSS perimeter and (2) modeled doses from airborne particulate releases using soil data from the remedial investigation and annual average wind speed. The dose from the modeled airborne particulate releases is compared to the individual dose standard of 10 mrem per year specified in 40 CFR Part 61.92, Subpart H.

4.1.1 External Gamma Radiation

In 2012, external gamma radiation dose rates were measured continuously for the year using OSL dosimeters. The 2012 results, including both raw data and data corrected for background, are presented in Table 4.

The data are used to calculate the exposure (dose rate) to external gamma radiation for the receptor, considered to be the nearest resident and the nearest commercial/industrial worker. The locations of these receptors are based on a 2005 canvas of the site vicinity. The receptor dose rate is a function of (1) the normalized annual OSL dose rate based on the semi-annual dose rates measured at the site fence line, (2) the distance of the receptor from the fence line, and (3) the amount of time the receptor spends at his respective location. Results of this calculation are expressed as a dose rate to the individual in mrem per year.

Based on the 2012 OSL dosimeter results, the dose rates to the receptors are consistent with results from previous years, as follows:

- 0.036 mrem/year to a resident located 500 ft (152.4 meters) from the western perimeter fence, southwest of the site
- 0.0035 mrem/year to an off-site worker located 1,020 ft (310.9 meters) east of the site

Receptor dose rate calculations are presented in Section 4.3 of Appendix A. Trend graphs depicting external gamma dose rates at the NFSS and IWCS perimeters from 1998 thru 2012 are presented on Figures 8 and 9, respectively.

4.1.2 Airborne Particulate Dose

To determine the dose from airborne particulates potentially released from NFSS during 2012, airborne particulate release rates are calculated using soil data collected during the NFSS Remedial Investigation between 1999 and 2004 and weather data for the year 2012 collected at the Niagara Falls International Airport by the National Weather Service. Contributions from radon gas, which is not a particulate, are not considered in this calculation. The total airborne particulate release rate is input into the USEPA's CAP88-

PC (Version 3.0) computer model to perform two calculations that:

1. Determine resultant doses from airborne particulates to individuals at the distances to the nearest residence and to the nearest commercial/industrial facility, as measured from a central location on site, based on prevailing wind direction. Doses are then corrected for commercial/industrial facility occupancy at an assumed rate of 40 hours/week for 50 weeks/year. Residential occupancy is assumed to be full-time (i.e., 24 hours/day and 365 days/year [366 days for a leap year]). The individual receiving the higher of these calculated doses is identified as the maximally exposed off-site individual (MEI) for airborne particulate dose.

2. Determine the airborne particulate collective dose to the population within 50 miles (80 km) of the site using a population file (2000 census data for New York State and 2001 census data for the Province of Ontario) to determine the number of people in circular grid sections radiating to 50 miles (80 km) from the center of site.

The first calculation (Appendix B) indicates that the 2012 airborne particulate dose to the MEI, a resident, 2,999 ft (914 meters) south-southwest of the site, was 0.0005 mrem. Consistent with results from previous years, this value is well below the 10 mrem per year standard, individual dose, specified in 40 CFR, Part 61.92, Subpart H.

The second calculation indicates that the annual airborne particulate collective dose to the population within 50 miles (80 km) of the site was 0.014 person-rem. This compares to an annual background dose to the same population of 5,425,000 person-rem. Census data are depicted on Figure 10. Details of the calculations, including methodology are presented in Appendix B.

4.1.3 Calculated Cumulative Dose

As a conservative measure, the cumulative dose to the MEI, which is calculated by adding the maximum external gamma dose to the maximum airborne particulate dose, is compared to the 100 mrem per year dose limit (excluding radon). Based on 2012 data, the cumulative dose is 0.0365 mrem (0.036 mrem + 0.0005 mrem), which is significantly less than the USDOE limit of 100 mrem per year (excluding radon) and the US average per capita background dose of approximately 620 mrem per year (NCRP 2009). (Please note that the US per capita dose from background radiation has been increased to 620 mrem/person due mainly to increased use of nuclear medical imaging.)

4.2 Radon Gas

Radon monitoring at NFSS is performed at a height that is representative of the human breathing zone (5.6 ft or 1.7 meters above ground level). Radon concentration diminishes significantly as distance from the ground increases and mixing with ambient air takes place.

Based on the radioactive constituents in the wastes contained in the IWCS, it is unlikely that radon-220 would be emitted from the IWCS; however, it is possible that radon-222 would be emitted. Air surveillance is conducted to determine the concentration of radon gas at NFSS using Radtrak® detectors that are designed to measure alpha particle emissions from both isotopes of radon (radon-220 and radon-222) and to collect passive, integrated data throughout the period of exposure. Because radon-220 is not a contaminant of concern at NFSS (due to the relatively low concentrations of radium-228 and the short half-life of radon-220), all concentrations are conservatively assumed to be radon-222. Results of semi-annual monitoring for 2012 are presented in Table 5. The corresponding surveillance locations are shown on Figure 6.

Consistent with results from previous years, all site radon-222 results from the 2012 ESP were well below the USDOE off-site limit of 3.0 pCi/L above background. Results presented are without background subtracted and ranged from non-detect (less than 0.2 pCi/L) to 0.5 pCi/L. The background locations results ranged from non-detect (less than 0.2 pCi/L) to 0.5 pCi/L. The site average of 0.28 pCi/L (non-detects included in average) is comparable to that of the background average of 0.28 pCi/L and to that of the average outdoor value of 0.4 pCi/L (USEPA 1993).

4.3 Radon-222 Flux

Measurement of radon-222 flux provides an indication of the rate of radon-222 emission from a surface. Radon-222 flux is measured with activated charcoal canisters placed on a grid spaced 49.2 ft (15-meters) on center across the surface of the IWCS for a 24-hour exposure period. Sample locations are shown on Figure 4.

Measured results in 2012 for radon flux, presented on Table 6, ranged from non-detect to 0.9917 pCi/m^2/s, with an average result (of detects and non-detects) of 0.0425 pCi/m^2/s. Background measurements were both non-detect. As in previous years, these results are well below the 20.0 pCi/m^2/s standard specified in 40 CFR Part 61, Subpart Q, are comparable to background, and demonstrate the effectiveness of the containment to mitigate the release of radon-222.

4.4 Surface Water

In 2012, surface water samples were collected semi-annually (2nd and 4th quarters) from the 11 designated locations with a couple of exceptions: location SWSD024 was sampled in the 2nd quarter only and location SWSD025 is sampled quarterly. Sample locations are presented on Figure 7.

A summary of the surface water sample collection effort is as follows:

- 2nd quarter samples were collected between April 11 and April 17, 2012
- 4th quarter samples were collected between October 1 and October 3, 2012
- 1st and 3rd quarter samples were also collected from SWSD025 on February 14 and August 7, 2012, respectively
- Analytical parameters included radionuclides (cesium-137, plutonium-238, plutonium-239/240, strontium-90, technetium-99, tritium, radium-226, radium-228, thorium-228, thorium-230, thorium-232, uranium-234, uranium-235, and uranium-238), metals, volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and pesticides. (Note: 1st and 3rd quarter samples from SWSD025 are analyzed for radionuclides and metals only)

In addition to the standard sampling schedule, the USACE and the Niagara County DOH (on behalf of the NYSDOH) collected four additional surface water samples on February 14, 2012. Two samples were collected from the Central Drainage Ditch east of the IWCS and two samples were collected from the West Drainage Ditch west of the IWCS. The samples were analyzed for gross alpha, gross beta, isotopic uranium, isotopic thorium, radium-226, radium-228, cesium-137, ruthenium-106, and zirconium-95.

All surface water samples are measured for turbidity prior to submission to the laboratory for analysis. If turbidity measurements are greater than 50 nephelometric turbidity units (NTUs), the sample is filtered and both the filtered and unfiltered samples are submitted to the laboratory for analysis (applies to radionuclides and metals only). Otherwise, only the unfiltered sample is collected and analyzed.

Details of the findings are presented in the following sections.

4.4.1 Surface Water Radiological Findings

In general, the 2012 analytical results for radionuclides in surface water, which are presented on Table 7, were:

- Below NYS Class B surface water criteria (or if not available, Class A or drinking water criteria)
- Comparable to past results

Details are presented in the following sections.

Radium

Radium-226 and radium-228 were not detected in the majority of 31 surface water samples collected and analyzed. Among the detections, the concentrations were well below the state drinking water limits of 3 pCi/L for radum-226 and 5 pCi/L for combined radium-226 and radium-228, as detailed below:

- Radium-226 analytical results showed that 26 samples were non-detect and 5 samples were detects (2 filtered and 3 unfiltered), with concentrations ranging from 0.213 pCi/L (SWSD009) to 0.724 pCi/L (WDD1) (both upgradient sample locations); and,
- Radium-228 analytical results showed that 27 samples were non-detect and 4 samples were detects (all unfiltered), with concentrations ranging from 0.513 pCi/L to 1.94 pCi/L (SWSD025).

These results are consistent with historical data.

Thorium

Thorium was not detected in the majority of samples analyzed, and among the detections, the concentrations were well below 15 pCi/L, the state drinking water limit (for gross alpha radiation). The results are as follows:

- Thorium-228 analytical results showed 24 non-detects, 2 rejected samples (because the uncertainties were greater than the results) and 5 detects with a maximum concentration of 0.875 pCi/L (SWSD025);
- Thorium-230 analytical results showed 30 non-detects and 1 detect at a concentration of 0.429 pCi/L (SWSD025); and,
- Thorium-232 analytical results showed 31 non-detects.

These results are consistent with historical data.

Uranium

In the past, total uranium concentrations in surface water were calculated by adding isotopic uranium concentrations. The result was a total uranium activity level in units of pCi/L. Following the sampling event in the first quarter of 2012, isotopic uranium analysis was replaced with total uranium analysis. Total uranium is reported in units of micrograms per liter (µg/L).

In the 1st quarter of 2012, filtered and unfiltered samples were collected from location SWSD025 and analyzed for isotopic uranium. The unfiltered sample exhibited a uranium-234 concentration of 6.86 pCi/L, uranium-235 of 0.414 pCi/L, and uranium-238 of 6.36 pCi/L (or a total uranium concentration of 13.6 pCi/L). The filtered sample exhibited a uranium-234 concentration of 6.21 pCi/L, uranium-235 of 0.191 pCi/L, and uranium-238 of 6.04 pCi/L (or a total uranium concentration of 12.4 pCi/L).

The remaining 2012 surface water data showed total uranium concentrations ranging from 0.768 µg/L (WDD1) to 18.9 µg/L (SWSD025). All the data were below 30 µg/L, the total uranium state drinking water limit.

These data are consistent with historical data.

Cesium-137, Plutonium-238 and 239/240, Strontium-90, Technetium-99, and Tritium

With one exception, the analytical results for cesium-137, plutonium-238, plutonium-239/240, strontium-90, and technetium-99 were all non-detect. The sample collected from SWSD025 in October 2012 exhibited technetium-99 at a concentration of 16.8 pCi/L, which is below 900 pCi/L, the state drinking water criterion. Two samples analyzed for plutonium-239/240 and two samples analyzed for technetium-99 were rejected due to method blank contamination/bias.

Tritium was detected at 16 locations at concentrations ranging from 236 pCi/L to 2,837 pCi/L (SWSD010), which are well below 20,000 pCi/L, the state drinking water standard.

4.4.2 Surface Water Chemical Findings

In general, the 2012 analytical results for chemicals in surface water were:

- Below criteria for the majority of metals, VOCs, and pesticides and all PAHs and PCBs
- Comparable to past results

Metals

In 2012, a total of 30 surface water samples were collected and analyzed for metals (Table 8). The analytical results for metals in surface water indicated that several surface water samples exceeded NYSDEC criteria for aluminum, iron, magnesium, and sodium. A few samples also exceeded the criteria for antimony, chromium, manganese, and selenium. The analytical findings are comparable to past results.

VOCs

In 2012, a total of 21 surface water samples were collected and analyzed for VOCs: 11 samples were collected in the 2nd quarter and 10 samples in the 4th quarter (SWSD024 was dry in the 4th quarter, so no sample could be collected).

The analytical results were generally non-detect for VOCs (Table 9). A few locations indicated low levels of typical lab contaminants, such as acetone, methyl ethyl ketone, and methylene chloride. Additionally, sampling locations SWSD011 and SWSD022 exhibited trace levels of chlorinated solvent compounds, findings that are similar to past results at these sampling locations. No detections exceeded criteria.

PAHs, PCBs and Pesticides

In 2012, a total of 21 surface water samples were collected and analyzed for PAHs, PCBs, and pesticides: 11 samples were collected in the 2nd quarter and 10 samples in the 4th quarter (SWSD024 was dry in the 4th quarter, so no sample could be collected).

The analytical results were non-detect for PAHs and PCBs. Several pesticides slightly exceeded their respective Class B surface water standards; however, the standards for these pesticides are on the order of parts per trillion, which is very low. The analytical findings are presented on Table 10.

4.5 Sediment

In 2012, sediment samples were collected from all 11 designated locations in the 2nd and 4th quarters (i.e., semi-annually) except location SWSD025, which also is sampled in the 1st and 3rd quarters (i.e., quarterly). Sampling locations are presented on Figure 7.

A summary of the sediment sample collection effort for 2012 is as follows:

- A total of 24 sediment samples were collected; two sediment samples, one in the 2nd quarter and one in the 4th quarter, from each of the 11 sampling locations; and two additional samples, one in the 1st quarter and one in the 3rd quarter, from location SWSD025
- 2nd quarter samples were collected between April 11 and April 17, 2012
- 4th quarter samples were collected between October 1 and October 3, 2012
- Location SWSD025 was also sampled on February 14 and August 7, 2012 (1st and 3rd quarters)
- Analytical parameters include radionuclides (cesium-137, plutonium-238, plutonium-239/240, strontium-90, technetium-99, tritium, radium-226, radium-228, thorium-228, thorium-230, thorium-232, uranium-234, uranium-235, and uranium-238), metals, VOCs, PAHs, PCBs, and pesticides. (Note: 1st and 3rd quarter samples from SWSD025 are analyzed for radionuclides and metals only)

Details of the findings are presented in the following sections.

4.5.1 Sediment Radiological Findings

The 2012 analytical results for radionuclides in sediment are presented on Table 11. In general, the results were:

- Below criteria
- Comparable to past results

Radium

The 2012 analytical results for combined radium-226 and radium-228 in sediment were well below 5 pCi/g (above background), the allowable limit in accordance with USDOE Order 458.1. Specifically, the 2012 data indicated that:

- Radium-226 was detected in all 24 samples with concentrations that ranged from 0.735 pCi/g (SWSD023) to 1.84 pCi/g (SWSD025)
- Radium-228 was detected in all 24 samples with concentrations that ranged from 0.703 pCi/g (SWSD023) to 1.81 pCi/g (SWSD025)

These results are consistent with historical data, as shown on the graph on Figure 11, which presents total radium (radium-226 and radium-228) concentrations in sediment between 1997 and 2012.

Thorium

With one exception, thorium-228, -230, and -232 were detected in all sediment samples collected in 2012. The analytical results were consistent with historical data and total isotopic thorium was less than the USDOE Order 458.1 criterion of 5 pCi/g above on-site background. The 2012 analytical data for thorium showed that:

- Thorium-228 was detected in all 24 sediment samples, with concentrations ranging from 0.56 pCi/g (SWSD023) to 1.88 pCi/g (SWSD021) (similar to the previous year's findings that ranged from 0.816 pCi/g to 1.69 pCi/g);
- Thorium-230 was detected in 23 of 24 sediment samples, with concentrations ranging from 0.244 pCi/g (SWSD023) to 1.44 pCi/g (SWSD022) (similar to the previous year's findings that ranged from 0.44 pCi/g to 1.65 pCi/g); and,
- Thorium-232 was detected in all 24 sediment samples, with concentrations ranging from 0.364 pCi/g (SWSD023) to 1.54 pCi/g (WDD1) (similar to the previous year's findings that ranged from 0.683pCi/g to 1.33 pCi/g).

Uranium

The 2012 analytical results for uranium isotopes, uranium-234, uranium-235 and uranium-238, in sediment showed detections in the majority of samples collected. Among the detections, the concentrations ranged 0.053 pCi/g to 2.8 pCi/g. These isotopic uranium data are consistent with historical data (last year's findings ranged from 0.058 pCi/g to 2.95 pCi/g) and are well below their respective criteria. A graphical representation of the analytical data is shown on Figure 12.

Cesium-137, Plutonium-238 and 239/240, Strontium-90, Technetium-99, and Tritium

In 2012, a total of 24 samples were collected for analysis for cesium-137, plutonium-238, plutonium-239/240, strontium-90, technetium-99, and tritium. The analytical data showed the following:

- Cesium-137
  - 14 of the 24 samples were non-detect
  - Among the 10 detections, the concentrations ranged from 0.04 pCi/g to 0.158 pCi/g, which are well below the criterion of 11 pCi/g above on-site background for cesium-137

- Plutonium-238 and Plutonium-239/240
  - All of the analytical results were non-detect
  - Three samples were rejected, two because the uncertainty was greater than the result and one due to possible matrix blank contamination/bias

- Strontium-90
  - 16 samples were non-detect
  - Detections were recorded at three locations: 0.72 pCi/g at SWSD011, 0.335 pCi/g at SWSD022 and 0.3 pCi/g at SWSD025
  - All three of the detections are less than the criterion of 1.7 pCi/g above on-site background for strontium-90
  - Five samples were rejected due to possible matrix blank bias

- Technetium-99
  - 18 samples were non-detect
  - Six samples were rejected due to matrix blank bias

- Tritium
  - 18 samples were non-detect
  - Detections were recorded at SWSD009 (0.801 pCi/g and 0.756 pCi/g), SWSD025 (0.593 pCi/g and 0.553 pCi/g), SWSD010 (0.424 pCi/g), and SWSD022 (0.383 pCi/g), all of which are below the criterion of 110 pCi/g (NUREG 1757).

4.5.2 Sediment Chemical Findings

The 2012 analytical results for chemicals in sediment are presented on Tables 12 through 14 and are summarized below.

Metals

Several metals, including cadmium, lead, mercury, nickel, and zinc, were detected in sediment at concentrations that exceed their respective NYS Unrestricted Use soil clean-up objectives (SCOs) criteria; however, all but cadmium were below their respective NYS Restricted Use SCOs (residential) (and the concentration of cadmium detected only slightly exceeded its criteria). In addition, calcium, copper, total chromium, magnesium, potassium, sodium, and thallium exceeded the greater value between the EPA RSL or NFSS RI background screening level. These values are used for comparison in the absence of NYS SCOs. The analytical data are shown on Table 12.

VOCs

As shown on Table 13, there are several detections of methylene chloride and acetone in the sediment samples collected in 2012 which exceeded their respective NYS Unrestricted Use SCOs but were below their respective Restricted Use SCOs. Since these VOCs are used as solvents in the laboratory, their presence is most likely due to laboratory contamination. Many of these detections are "J" flagged by the laboratory meaning that the concentrations are estimated because they are below the reporting limit. Toluene also was detected at one location (SWSD023) at a concentration above the NYS Unrestricted and Restricted Use SCOs.

PAHs

Several PAHs were detected in the sediment samples collected in 2012, with the highest concentrations found at sampling point SWSD023 located along the southern property boundary near the oil/water separator effluent that originates in Modern's parking area. The analytical results for most of the detected PAHs are below their respective NYS Unrestricted Use SCOs except for those in samples collected at SWSD009, SWSD022, and SWSD023. The analytical findings for PAHs in sediment are shown on Table 14.

PCBs

The 2012 sediment samples analyzed for PCBs were mostly non-detect but included six detections. Among the detections was the 4th quarter sample collected at SWSD023, which exhibited a total PCB concentration of 220 micrograms per kilogram (µg/kg). This result is greater than 100 µg/kg, the NYS Unrestricted Use SCO, but less than 1,000 µg/kg, the NYS Restricted Use SCO. The remaining detections were less than the NYS Unrestricted Use SCO. The analytical findings are shown on Table 14.

Pesticides

The analytical results for pesticides are predominantly non-detect. Among the detections, samples collected at SWSD011 and SWSD023 exhibit parameters that exceeded the NYS Unrestricted Use SCOs, but which were lower than their respective NYS Restricted Use SCOs. The analytical findings are shown on Table 14.

4.6 Groundwater

A total of 39 monitoring wells are sampled semi-annually; two of these wells, OW04A and OW04B, also are sampled quarterly. All groundwater samples were collected using low-flow collection techniques. Sampling locations are presented on Figure 5. Water levels are measured on a quarterly basis in 101 wells.

Highlights of the groundwater sample collection effort in 2012 are as follows:

- The semi-annual sampling took place between April 10-18 (2nd quarter) and October 1-10 (4th quarter); wells OW04A and OW04B also were sampled on February 14 and August 7, 2012
- Groundwater samples were collected from 39 monitoring wells in the 2nd quarter event, with well MW921 replacing MW922, which was dry
- Groundwater samples were collected from 38 monitoring wells in the 4th quarter event (well 505 was dry)
- Water level measurements were recorded from 101 wells
- Groundwater samples were analyzed for radionuclides (cesium-137, plutonium-238, plutonium-239/240, strontium-90, technetium-99, tritium, radium-226, radium-228, isotopic thorium, isotopic uranium [February 2012 only]), metals, VOCs (4 wells only), and water quality parameters (such as alkalinity and total dissolved solids).

For comparative purposes, the NYSDEC Class GA (groundwater, which is considered potable) water quality standards (hereafter referred to as NYSDEC drinking water standards) are utilized. It is noted that groundwater at the NFSS is not a source of drinking water and is naturally a Class GSA saline water.

Details of the findings are presented in the following sections.

4.6.1 Groundwater Level Measurements

In 2012, groundwater levels were measured in 101 wells using an electronic depth-to-water meter. Potentiometric data were recorded from 59 wells in the upper water bearing zone (including 10 new wells installed in 2009) and 42 wells in the lower water bearing zone (including six bedrock wells). Water level measurements are presented on Table 15.

Figures 13 through 16 show the piezometric surfaces and groundwater flow directions in the upper and lower units during seasonally high and low groundwater conditions. Groundwater contours initially are hand drawn to account for site features (e.g., the IWCS and drainage ditches) and then digitized using ArcGIS® to present the groundwater flow directions and gradients.

The screened intervals for wells completed in the upper water bearing zone range from 3.02 to 27.6 ft (0.92 to 8.4 meters (m)) below ground surface, while screened intervals for wells completed in the lower water bearing zone range from 22.4 to 104.5 ft (6.8 to 31.9 m) below ground surface. The 101 groundwater monitoring wells are located throughout the NFSS and provide significant areal coverage for groundwater flow characterization.

In the upper water-bearing zone, the depth to water ranged from -1.97 to 18.00 ft (-0.6 to 5.5 m) below ground surface during 2012 (the negative value reflects a minor artesian condition at well 603A in February). The quarterly water-level fluctuations in the upper water-bearing zone averaged 2.49 ft (0.75 m) and showed high and low elevations on February 14, 2012, and August 7, 2012, respectively. In the lower groundwater system, the depth to water ranged from 1.57 to 15.08 ft (0.48 to 4.6 m) below ground surface during 2012. Quarterly water-level fluctuations in the lower groundwater system averaged 0.98 ft (0.3 m) and showed high and low elevations on May 19, 2012, and October 1, 2012, respectively.

The high-water elevations in the upper system ranged from 304.48 to 319.11 ft (92.8 to 97.3 m) above mean sea level, whereas the low-water condition ranged from 298.22 to 317.22 ft (90.9 to 96.7 m). The high-water elevation in the lower system ranged from 306.30 to 316.62 ft (93.4 to 965 m) above mean sea level, whereas the low-water condition ranged from 301.42 to 313.67 ft (91.9 to 95.6 m).

Water-level data indicate that the upper water-bearing zone responds more rapidly to the recharge and discharge seasons (wet and dry periods) than the lower confined groundwater system due to the intervening glacio-lacustrine clay aquitard. The two water-bearing zones demonstrate hydraulic separation through independent water-level responses, as exemplified by the temporally different seasonal high and low conditions. The high-stress (dry) summer conditions normally lower water levels in the upper water-bearing zone and the lower water-bearing zone usually lags by several months due to the hydraulic separation by the aquitard (i.e., the high- and low-water measurements for each zone are separated by a three-month lag time in 2012).

4.6.2 Groundwater Field Parameters

Prior to sampling, field parameters were measured at each well using a calibrated water quality meter. Field parameters include temperature, pH, specific conductance, oxidation-reduction potential, turbidity, and dissolved oxygen. The results are summarized on Table 16.

4.6.3 Groundwater Quality Parameters

At the NFSS, water quality in the upper water-bearing zone is indicative of low recharge to a hydraulically slow flow system, which produces poor-quality (near-saline) groundwater containing high total dissolved solids and calcium/magnesium sulfates. Water quality in the lower water-bearing zone is poor due to high total dissolved solids. It is likely that the lower groundwater system receives recharge along the base of the Niagara Escarpment, situated approximately 2 miles (3.2 km) south of the site (USDOE 1994) and, to a lesser extent, via downward flow from the upper unit during spring recharge. Table 17 presents water quality parameter data for 2012.

Analytical results for sulfate were consistently above the NYS Class GA groundwater quality standards, while chloride and fluoride exceeded the NYS standards in only a few samples.

Sampling of wells during the RI confirms that groundwater in the area is naturally saline and of poor quality because of high mineralization (see La Sala 1968; Wehran 1977; Acres American 1981). Groundwater at the NFSS is not used as a public water supply and is definable as a Class GSA water, although the comparison to the drinking water standards continues to be used to provide a conservative evaluation of groundwater analytical results.

4.6.4 Groundwater Radiological Findings

The 2012 analytical results for radionuclides in groundwater are presented on Table 18. In general, the majority of the results were:

- Non-detect or below criteria
- Consistent with historical results suggesting that groundwater is contaminated with uranium from legacy residue/waste handling and/or surface-storage practices

Uranium

The 2012 analytical results for total uranium showed that eight wells exceeded the state drinking water standard; all of the wells are screened in the upper water bearing zone. Five of these wells (A42, OW04B, OW11B, OW12B, and MW935) are located in the vicinity of the IWCS; two are located near the eastern boundary of the site (302A, MW313); and one (MW934) is located near the north-central boundary of the site. Concentrations in these eight wells ranged from 32.3 µg/L (MW934) to 353 µg/L (OW11B).

The range of total uranium concentrations differentiated by upper and lower water bearing zone over the last two years is presented in the following tables:

Total Uranium Findings (2011 and 2012)

Location	Concentration Range (µg/L)	
	2011	2012
26 wells sampled in upper water-bearing zone	Non-detect – 555.94	6.69 - 353
13 wells sampled in the lower water-bearing zone	Non-detect – 13.04	Non-detect –12.7

Generally, the 2012 total uranium analytical results are consistent with the historical data, as shown on Figures 17 and 18, and although the analytical data are compared to drinking water standards, groundwater at the NFSS is not a source of drinking water and is naturally a Class GSA saline water. Declining to dynamic steady-state (i.e., annually fluctuating about a mean) uranium trends in wells surrounding the IWCS are indicative of attenuating legacy sources (i.e., surface stored wastes) that impacted soil and groundwater prior to the IWCS construction. The recently completed Balance of Plant Field Investigation also concluded that soil contamination in the vicinity of the former decontamination pad may be contributing to groundwater contamination in that area (e.g., well OW11B). Analysis of trends for total uranium in groundwater is discussed in more detail in Section 4.6.6.

Radium

The 2012 analytical results for radium-226 showed that among the 80 samples analyzed: 73 were non-detect; 6 detections ranged from 0.167 pCi/L to 1.13 pCi/L; and, one sample, MW922, was rejected because the uncertainty value was greater than the result. Well MW862 exhibited the highest concentration at 1.13 pCi/L. Well MW862 is screened in the upper-water bearing zone and is situated along the eastern side of the IWCS. All the data were below 3 pCi/L, the NYS drinking water standard for radium-226.

The range of radium-226 concentrations differentiated by upper and lower water bearing zone over the last two years is presented in the following tables:

Radium-226 Findings (2011 and 2012)

Location	Concentration Range (pCi/L)	
	2011	2012
26 wells sampled in upper water-bearing zone	Non-detect – 0.405	Non-detect – 1.13
13 wells sampled in the lower water-bearing zone	Non-detect – 1.25	Non-detect – 0.977

The 2012 analytical results for radium-228 showed that among the 80 samples analyzed, 73 were non-detect and, 7 detections ranged from 0.484 pCi/L to 1.48 pCi/L. Well OW17A, situated near the southwest corner of the IWCS, exhibited the highest concentration.

The range of radium concentrations differentiated by upper and lower water bearing zone over the last two years is presented in the following tables:

Radium-228 Findings (2011 and 2012)

Location	Concentration Range (pCi/L)	
	2011	2012
26 wells sampled in upper water-bearing zone	Non-detect – 1.11	Non-detect – 0.891
13 wells sampled in the lower water-bearing zone	Non-detect – 1.13	Non-detect – 1.48

The highest combined radium-226 and radium-228 concentration detected in 2012 was 1.48 pCi/L in well OW17A, which is below 5 pCi/L, the NYS drinking water standard for combined radium.

Thorium

The 2012 analytical data for thorium-228, thorium-230, and thorium-232 showed that the majority of the samples were non-detect and two were rejected because the uncertainty value was greater than the result. Among the detections, concentrations ranged from 0.039 pCi/L of thorium-230 in well 302A to 1.29 pCi/L of thorium-228 in well OW04A. These results are similar to the previous year and the detected concentrations are below 15 pCi/L, the federal/state drinking water criterion.

Cesium-137, Plutonium-238 and 239/240, Strontium-90, Technetium-99, and Tritium

In 2012, a total of 78 samples were each analyzed for cesium-137, plutonium-238, plutonium-239/240, strontium-90, technetium-99, and tritium. No samples were collected from wells OW07B, OW12B, and MW934 due to poor water production during the 4th quarter sampling event.

The analytical results showed that all samples were non-detect with the following exceptions:

- strontium-90 was detected in well OW05A at a concentration of 1.07 pCi/L
- tritium was detected in wells OW18B, OW04A, and 302A at concentrations of 3,447 pCi/L, 680 pCi/L, and 270 pCi/L, respectively

These results are below the criteria for strontium-90 (200 pCi/L) and tritium (20,000 pCi/L).

Several samples were rejected including eight samples analyzed for technetium-99 due to method blank bias and two samples analyzed for plutonium-239/240 because uncertainty values were greater than the results.

4.6.5 Groundwater Chemical Findings

Though most groundwater at the NFSS site classifies as GSA saline groundwater and is not used as a public drinking water supply, sampling results are compared to federal/state drinking water criteria as a conservative baseline.

Metals

The 2012 analytical results for metals in groundwater are presented on Table 19. Metals that exceeded state drinking water criteria are discussed below:

- Arsenic – Detected in lower water-bearing zone wells OW03A, OW05A, OW07A, OW12A, OW13A, and OW15A and upper water bearing zone well 411A at concentrations that exceeded the criterion of 10 µg/L;

- Antimony – Detected in lower water-bearing zone wells BH49 and OW17A at concentrations that exceeded the criterion of 3 µg/L;
- Boron – Detected in wells in lower water-bearing zone MW863, OW07A, OW13A, and OW15A and upper water bearing zone wells 411A and 415A at concentrations that exceeded the criterion of 1,000 µg/L;
- Cadmium – Detected in upper water-bearing zone well MW934 at a concentration that exceeded the criterion of 5 µg/L;
- Iron – Detected in approximately one quarter of the wells sampled (both upper and lower water-bearing zones) at concentrations exceeding the criterion of 300 µg/L;
- Magnesium – Detected in all wells at concentrations exceeding the guidance value of 35,000 µg/L;
- Manganese – Detected in several wells sampled (both upper and lower water-bearing zones) at concentrations exceeding the criterion of 300 µg/L;
- Thallium – Detected in upper water-bearing zone well OW04B at a concentration that exceeded the criterion of 2 µg/L; and,
- Sodium – Detected at concentrations that exceeded the criterion of 20,000 µg/L at all locations sampled.

Several elevated metals are indicative of both the reduction-oxidation states (redox) of the groundwater at the site and the residence time of the groundwater in the water bearing zones (i.e., in contact with glacial sediments). A slightly reducing environment is evident in the lower water-bearing zone due to the presence of arsenic, iron and manganese, all of which become more soluble as the redox potential varies between an oxygenated and anoxic environment (i.e., these are indicator elements of lower or threshold redox conditions).

In addition, high concentrations of metals and anions without primary drinking-water criteria (e.g., calcium, magnesium, and potassium) in the lower water-bearing zone indicate high mineralization and thus long residence times in the confined aquifer, which allows the geochemical saturation of groundwater with naturally occurring cations dissolved from glacial sediments. This hydrogeologic setting has produced a groundwater condition that meets the NYS Drinking Water classification of GSA for the site.

VOCs

VOC analysis in groundwater is limited to two areas of the site where previous sampling has indicated the presence of VOC contamination: well 201A located south of former Building 401 and wells 411A, 415A, and MW934 located in the acidification area in the northeast portion of the site. Analytical results for VOCs are presented in Table 20 and discussed below:

- Several chlorinated solvent compounds and benzene were detected in well 415A at concentrations that exceeded their respective state drinking water standards; and,
- A couple common laboratory contaminants, chloroform and methylene chloride, were detected in well MW934 at concentrations that exceeded their respective state drinking water standards.

4.6.6 Groundwater Trend Analysis

Total uranium groundwater concentrations (µg/L) over the course of the USACE Environmental Surveillance Program (1997 through 2012) were subjected to the Mann-Kendall test to determine if any surveillance well shows a statistically significant upward trend in concentration. Before long-term trends can be evaluated, seasonal or repetitive cyclical trends should be identified as they can account for changes in concentration over time. Temporal data plots were inspected to identify seasonality, or predictable increases or decreases in concentration within a time cycle. The data, collected primarily in the spring and fall, do not indicate a consistent repeating pattern and as such did not support the use of the seasonal Kendall test.

The Mann-Kendall test, described in the EPA document: *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance* (USEPA, March 2009) and USACE Engineer Manual: *Environmental Quality – Environmental Statistics* (USACE, May 2013), is an accepted method for identifying the presence of a significant upward trend at surveillance wells. Under this method it is assumed that no discernible linear trend exists in concentration data over time (null hypothesis). To test this hypothesis the Mann-Kendall statistic (test statistic) is determined. The test statistic is a function of the sample data which quantifies the probability associated with the relative magnitudes of the sample data for a given sample size (n). The significance of this probability is determined by comparison to the critical value, a threshold value of statistical significance. The critical value is determined based on a 95% level of confidence associated with the standard normal distribution. If the test statistic exceeds the critical value, the null hypothesis is rejected and the alternative hypothesis (concentrations are trending) accepted. For small sample sizes ($n \leq 10$) a slightly different procedure is utilized, in which the probability is calculated directly and compared to the selected level of significance (0.05 for a 95% level of confidence); in this case, the null hypothesis is rejected if the probability is less than the level of significance. Rejection of the null hypothesis is considered to be strong evidence of an upward trend; if the null hypothesis is not rejected there is insufficient evidence for identifying a significant, non-zero trend.

The results of the total uranium groundwater concentration trend evaluation (spring and fall data from 1997 to 2012) are presented in the following two tables: the first table presents those wells that have sample sizes greater than 10; and, the second table presents those wells that have sample sizes less than or equal to 10.

As shown by the results in the tables, no increasing or decreasing trends in total uranium concentrations were identified in 34 of 39 wells used for analysis of trending throughout the site. A decreasing trend in total uranium concentrations was identified at wells A45, OW06B, OW18B and 201A, while an increasing trend was identified at well B02W20S. The previous evaluation (1997 through 2011), had determined an increasing trend for well OW11B and a decreasing trend for well A50; however with the inclusion of 2012 sampling data these determinations are no longer supported. The test's statistical power (ability to accurately reject the null hypothesis) is limited by the sample size of data collected from the wells. As additional data is collected through the surveillance program the statistical power of the test will increase.

WELL	SAMPLE SIZE (N)	TEST STATISTIC	CRITICAL VALUE
B02W20S	***22***	***1.69***	***1.64***
A42	21	-0.30	-1.64
A45	***22***	***-2.54***	***-1.64***
A50	22	-0.14	-1.64
OW04B	30	-1.14	-1.64
OW06B	***23***	***-3.01***	***-1.64***
OW07B	12	-0.07	-1.64
OW11B	19	1.12	1.64
OW13B	15	-0.59	-1.64
OW15B	22	0.34	1.64
OW17B	21	0.00	1.64
OW18B	***11***	***-2.02***	***-1.64***
OW04A	16	0.32	1.64
302A	20	-0.19	-1.64
415A	12	0.21	1.64
BH49A	12	-0.89	-1.64
MW313	11	0.00	1.64

NOTE: If Test Statistic exceeds the Critical Value, there is evidence of trending.

WELL	SAMPLE SIZE (N)	TEST PROBABILITY	LEVEL OF SIGNIFICANCE
OW03B	6	0.14	0.05
OW05B	6	0.24	0.05
OW12B	5	0.12	0.05
BH49	6	0.57	0.05
A55	6	0.50	0.05
505	10	0.30	0.05
201A	***7***	***0.02***	***0.05***
411A	7	0.50	0.05
OW03A	6	0.50	0.05
OW05A	7	0.19	0.05
OW06A	7	0.28	0.05
OW07A	7	0.39	0.05
OW11A	6	0.30	0.05
OW12A	5	0.41	0.05
OW13A	7	0.39	0.05
OW15A	6	0.50	0.05
OW17A	6	0.36	0.05
MW862	7	0.39	0.05
MW863	7	0.39	0.05
MW922	4	0.63	0.05
MW934	6	0.07	0.05
MW935	6	0.24	0.05

NOTE: If the Test Probability is less than the Level of Significance, there is evidence of trending.

Radium-226 concentrations (pCi/L) in groundwater are not evaluated for trending in this memorandum. Radium-226 groundwater concentrations over the course of the USACE Environmental Surveillance Program (1997 through 2012) are predominantly less than the laboratory detection limit, precluding the accurate assessment of trends.

5.0 CONCLUSIONS

The objective of the ESP is to monitor the air, groundwater, surface water, and sediment for the release of contaminants to ensure the protection of human health and the environment. To achieve this objective, the USACE:

- Calculates the annual cumulative dose to the nearest receptor from NFSS sources based on (1) measured total external gamma radiation and (2) modeled airborne particulate dose using Remedial Investigation Report soil data and annual meteorological data
- Measures radon gas concentrations at several locations around the property boundary and radon flux on top of the IWCS
- Analyzes surface water and sediment samples for radionuclides, metals, VOCs, PAHs, pesticides, and PCBs
- Analyzes groundwater samples for radionuclides, metals, and VOCs

The results of the 2012 ESP showed that the IWCS is continuing to perform as designed and is fully protective of human health and the environment. The data indicated that most contaminant concentrations were below regulatory standards and criteria. Contaminants that exceeded criteria include:

- Several metals and pesticides in surface water
- Metals, VOCs (typical laboratory contaminants), pesticides, PAHs, and PCBs (one sample) in sediment
- Several metals and total uranium at multiple groundwater sampling locations
- VOCs (chlorinated solvents) in groundwater monitoring wells located in the EU4

Total uranium concentrations in six groundwater monitoring wells exceeded the drinking water standard. All six wells are screened in the upper water bearing zone; four are located in the vicinity of the IWCS and two are situated towards the northeastern boundary of the site. Among these wells, the highest total uranium concentrations (353 µg/L and 210 µg/L) were detected in well OW11B. The source of the uranium in well OW11B is believed to be residual soil contamination from former operations in this area, which included a railroad bed, storage piles, and a decontamination pad used during construction of the IWCS. In the fall of 2012, USACE performed an investigation (which included test pits and new monitoring wells) in the vicinity of well OW11B to locate the source of this groundwater contamination. Additional field work in this area is planned for the fall of 2013.

A trend analysis for total uranium in groundwater was performed for the 39 monitoring wells in the ESP. The results showed no increasing or decreasing trends in 34 of the wells. A decreasing trend in total uranium concentrations was identified at wells A45, OW06B, OW18B and 201A, while an increasing trend was identified at well B02W20S. It is noted that the increasing trend for well OW11B and decreasing trend for well A50 reported in the 2011 ESP TM are no longer supported with the inclusion of 2012 sampling data.

6.0 REFERENCES

Acres American, Inc., 1981. *Hydrologic and Geologic Characterization of the USDOE-Niagara Falls Storage Site,* Buffalo, New York (September).

Argonne National Laboratory, 2012. *Preliminary Evaluation of Health Effects for Hypothetical Exposures to Contaminants from the Interim Waste Containment Structure Technical Memorandum,* (February).

La Sala, A.M. Jr., 1968. *Ground-Water Resources of the Erie-Niagara Basin, New York, State of New York Conservation Department, Water Resources Commission, Basin Planning Report ENB-3.*

National Council on Radiation Protection and Measurements (NCRP), 2009. *NCRP REPORT No. 160, Ionizing Radiation Exposure of the Population of the United States*

New York State Department of Environmental Conservation (NYSDEC), 1994. Memorandum from Michael J. O'Toole to the Regional Hazardous Waste Remediation Engineers, Bureau Directors and Section Chiefs, Division of Technical and Administrative Guidance, Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels (January 24).

NYSDEC, 1996. *Codes of Rules and Regulations of the State of New York (NYCRR); Title 6, Department of Environmental Conservation; Chapter X, Division of Water Resources; Subchapter A, General; Part 703, Surface Water and Groundwater Quality Standards and Groundwater Effluent Standards.* NYSDEC Water-Quality Regulations (August 1999).

USACE, 1999. *Report for Phase I Remedial Investigation at the Former Lake Ontario Ordnance Works, Niagara County, NY.* Prepared by EA. (July).

USACE, 2007. *Groundwater Flow and Contaminant Transport Modeling, Niagara Falls Storage Site, Lewiston, NY.* (December).

USACE, 2007, (Science Applications International Corporation (SAIC) and Tetra Tech). *NFSS Remedial Investigation Report*, (December).

USACE, 2008. *Environmental Quality: Environmental Statistics, App. Q: Trend Analysis, USACE EM 1110-1-4014. (*January). http://140.194.76.129/publications/eng-manuals/em1110-1-4014/.

USACE, 2011, SAIC, *NFSS Remedial Investigation Report Addendum Report* (April).

USDOE, 1994. *Niagara Falls Storage Site Failure Analysis Report* (unnumbered), Oak Ridge, Tenn. (December).

USDOE, 1996a. *Standards/Requirements Identification Document, Formerly Utilized Sites Remedial Action Program,* (April).

USDOE, 1996b. Letter from L. K. Price (Director, FSRD) to P. A. Giardina (Radiation Branch, USEPA Region II), Status of Radon Flux Monitoring (NESHAPs Subpart Q) at Three Department of Energy Sites in USEPA Region II, CCN 143772 (July 1).

USDOE, 2011. Change 2: 6-06-11, DOE Order 458.1, Radiation Protection of the Public and the Environment.

USEPA, 1987. *A Compendium of Superfund Field Operations Methods,* USEPA/540/P-87/001 (August).

USEPA, 2007. *Users Guide for Version 3.0, CAP88-PC,* (March).

USEPA, 1992. *RCRA Groundwater Monitoring: Draft Technical Guidance*, USEPA/530/R-93/001, Office of Solid Waste (November).

USEPA, Revision 1, 1996. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,* SW-846 (September).

USEPA, 1993. *Radon - A Physician's Guide: The Health Threat With A Simple Solution*, 402-K-93-008 (September).

USEPA, 1995. Letter from Tara O'Toole (Assistant Secretary, Environment, Safety and Health) to Distribution, Memorandum of Understanding with the Environmental Protection Agency Concerning the Radionuclide National Emission Standards for Hazardous Air Pollutants, CCN 130813 (April 5).

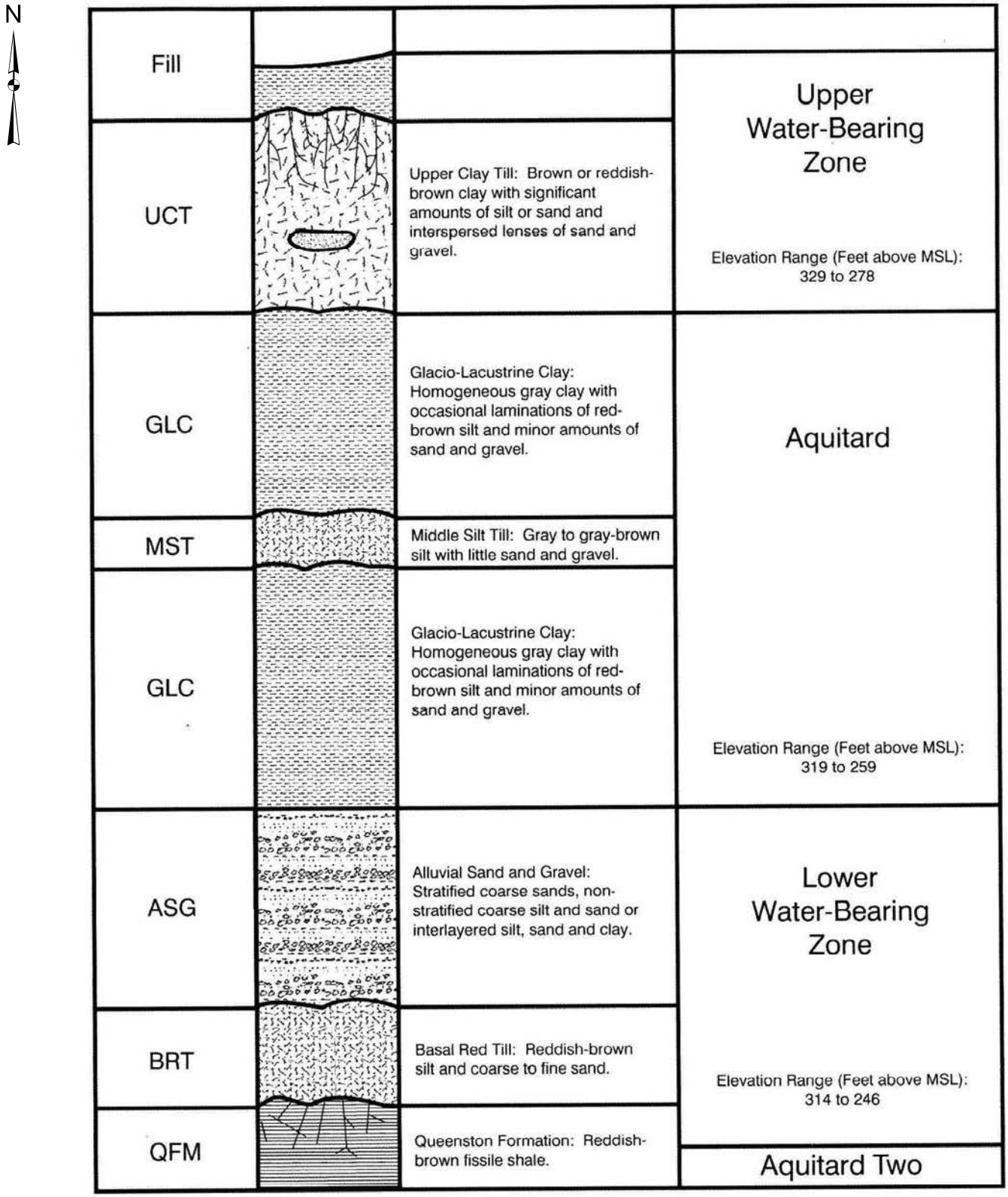
USEPA, 1996. *Drinking Water Regulations and Health Advisories,* USEPA-822-R-96-001, Office of Water (February).

USEPA, 2000. *National Primary Drinking Water Regulations; Radionuclides; Final Rule,* Federal Register Vol.65, No. 236 (December)

USEPA, 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance, EPA 530/R-09-007.* http://www.epa.gov/osw/hazard/correctiveaction/resources/guidance/sitechar/gwstats/index.htm

Wehran Engineering Corporation, 1977. *Hydrogeologic Investigation: Chem-trol Pollution Services, Inc., Townships of Porter and Lewiston, Niagara County, New York.*

FIGURES



US Army Corps of Engineers
Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

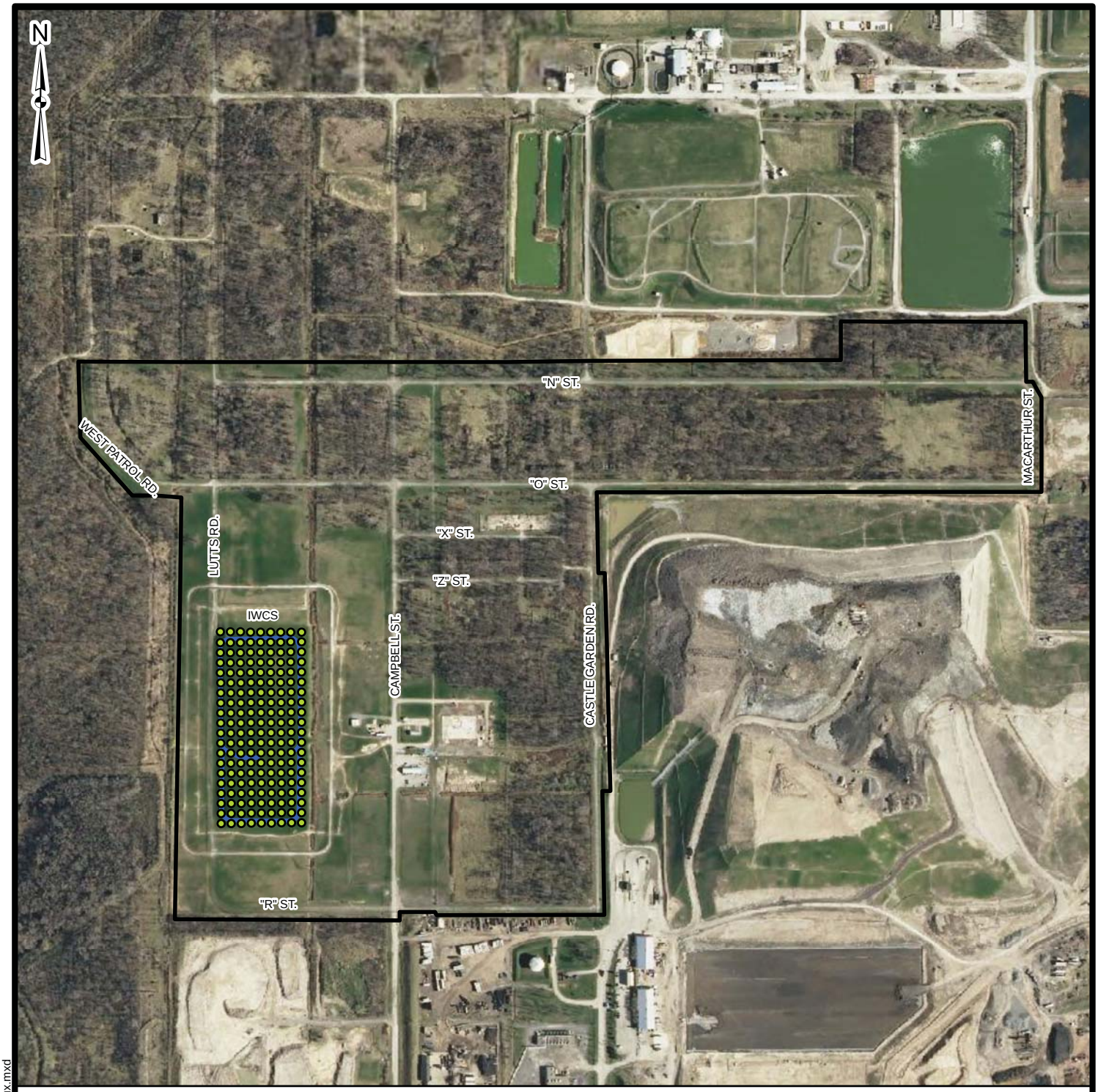
SCHEMATIC OF CONCEPTUALIZED HYDROSTRATIGRAPHY

Name: Figure03_Hydrostratigraphy.mxd
Drawn By: H5TDESPM
Date Saved: 07 Sep 2012
Time Saved: 3:41:57 PM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 3

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure03_Hydrostratigraphy.mxd



Legend

- Radon Flux Location
- NFSS Site Boundary
- IWCS Cutoff Wall

0 350 700 1,400 Feet

US Army Corps of Engineers
Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

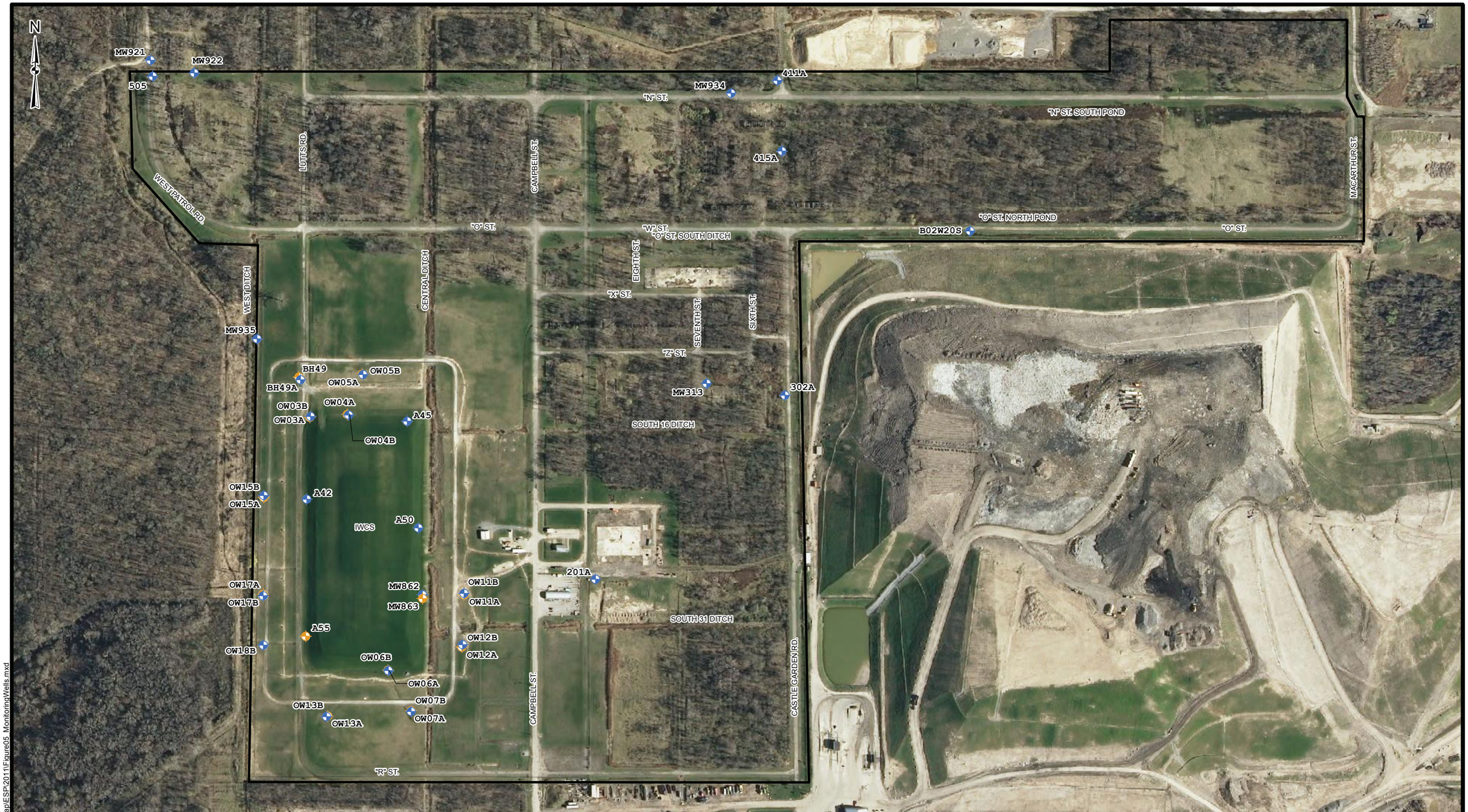
LOCATIONS OF RADON FLUX MEASUREMENTS
ON THE IWCS

Name: Figure04_RadonFlux.mxd
Drawn By: H5TDESPM
Date Saved: 07 Sep 2012
Time Saved: 3:38:33 PM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 4

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure04_RadonFlux.mxd



Legend

Groundwater Sampling Locations

- Monitoring Well (Lower Water Bearing Zone)
- Monitoring Well (Upper Water Bearing Zone)
- NFSS Site Boundary

0 175 350 700 Feet

US Army Corps of Engineers® Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

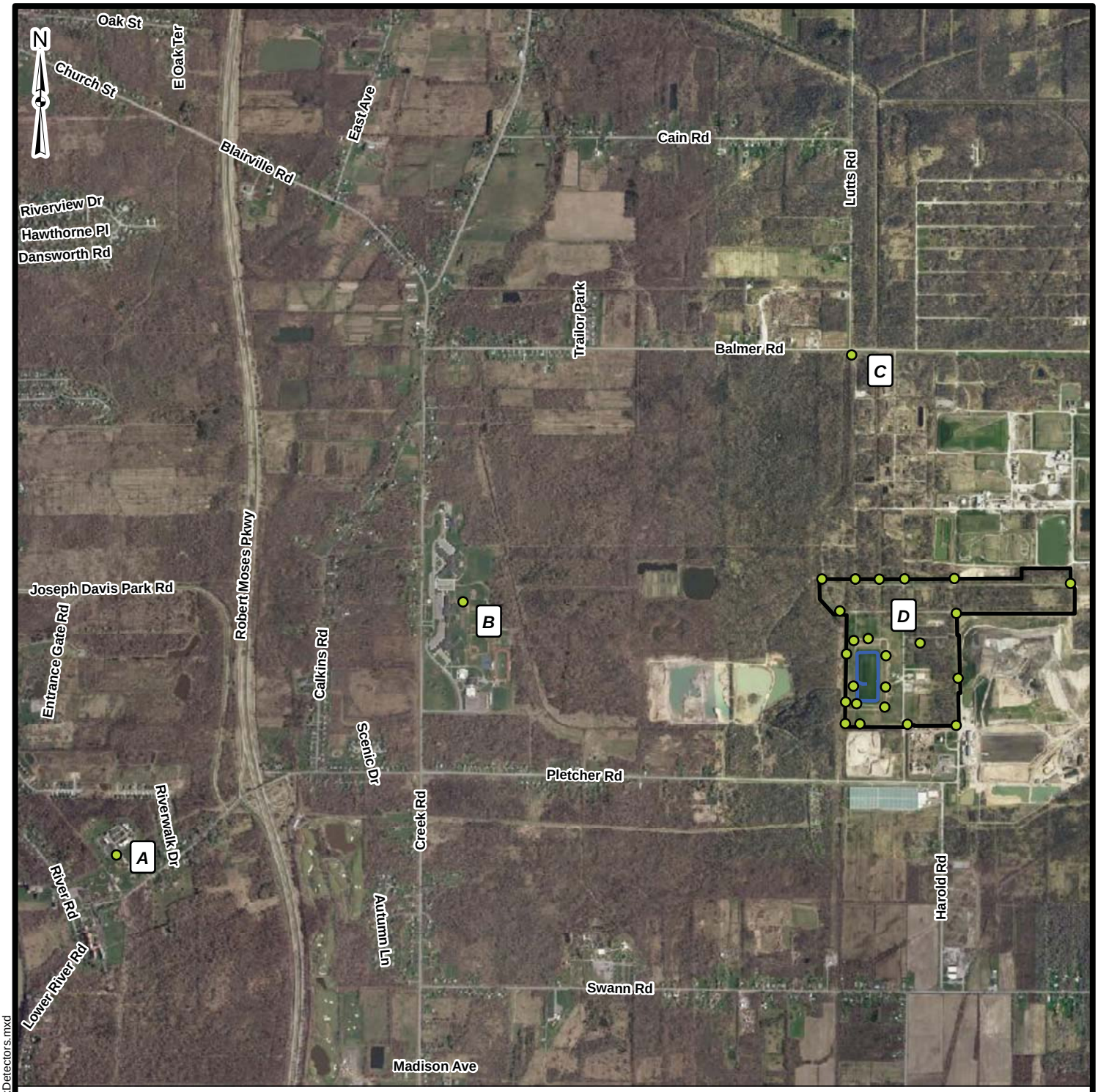
ESP GROUNDWATER SAMPLING LOCATION MAP

Name: Figure05_MonitoringWells.mxd
Drawn By: H5TDESPM
Date Saved: 01 Oct 2012
Time Saved: 8:38:38 AM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 5

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure05_MonitoringWells.mxd



Legend

- OSL's / RadTrack Detectors
- IWCS Cutoff Wall
- NFSS Site Boundary

A - Lewiston Water Pollution Control Center
B - Lewiston Porter School Campus
C - Balmer Road Location
D - Niagara Falls Storage Site

Locations A, B, and C are background locations for OSL, RadTrack and Radon Flux Sampling.

0 0.25 0.5 1 Miles

US Army Corps of Engineers
Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

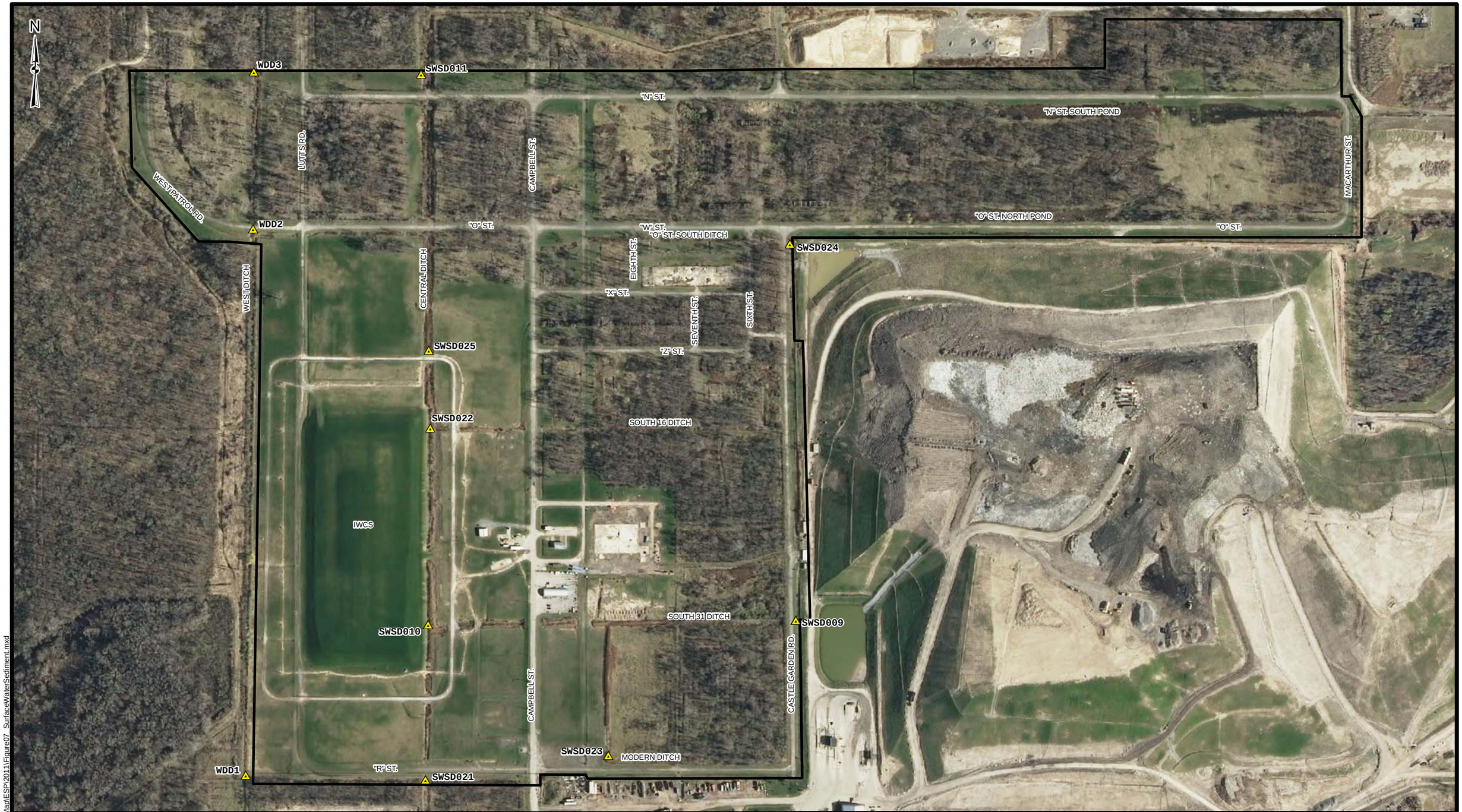
LOCATION OF RADTRACK DETECTORS AND OSL'S

Name: Figure06_RadTrackDetectors.mxd
Drawn By: H5TDESPM
Date Saved: 05 Sep 2012
Time Saved: 9:33:41 AM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 6

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure06_RadTrackDetectors.mxd



Legend

- Surface Water/Sediment Sample Loation
- NFSS Site Boundary

0 175 350 700 Feet

US Army Corps of Engineers
Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

ESP SURFACE WATER AND SEDIMENT
SAMPLING LOCATION MAP

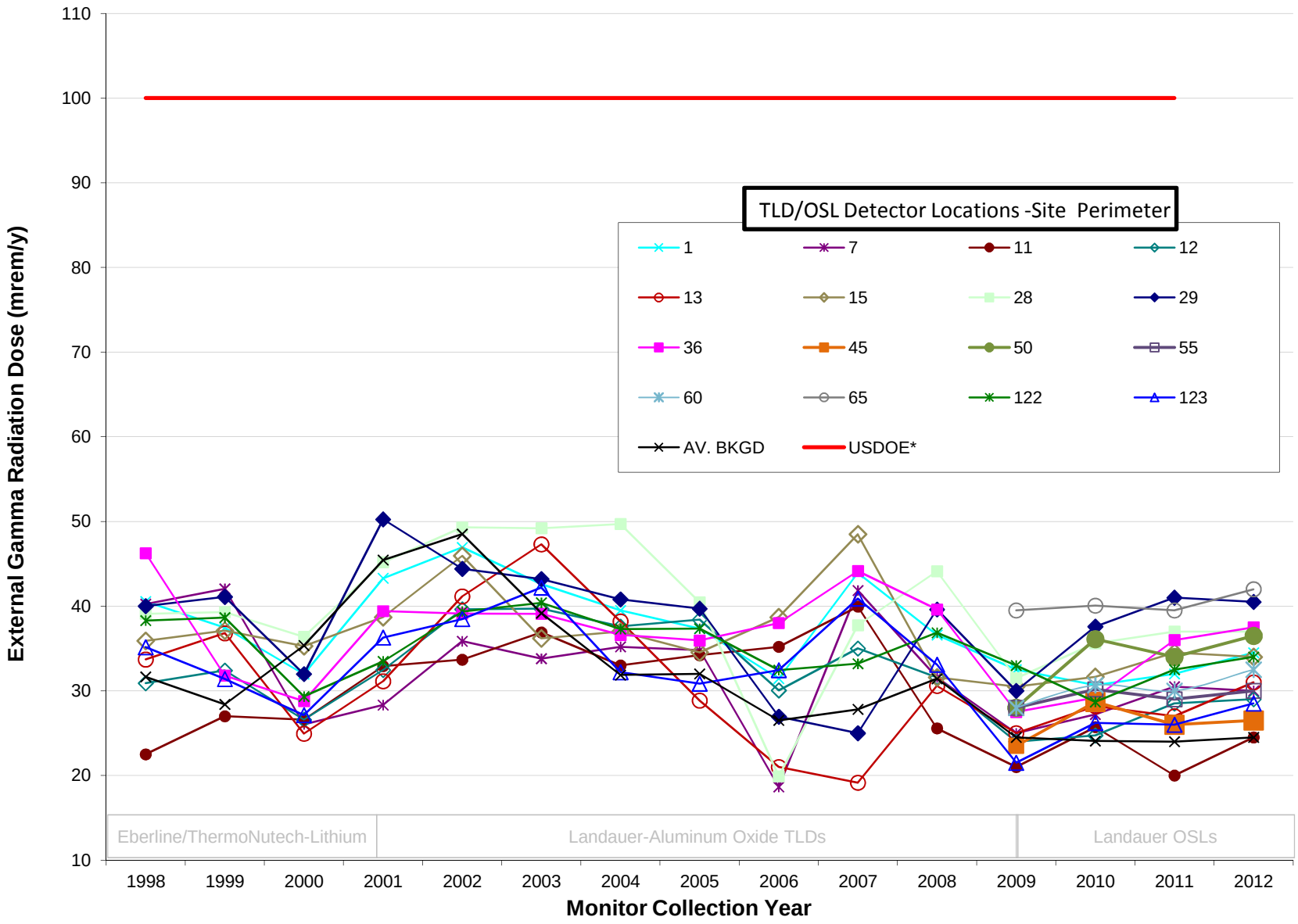
Name: Figure07_SurfaceWaterSediment.mxd
Drawn By: H5TDESPM
Date Saved: 07 Sep 2012
Time Saved: 4:02:35 PM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 7

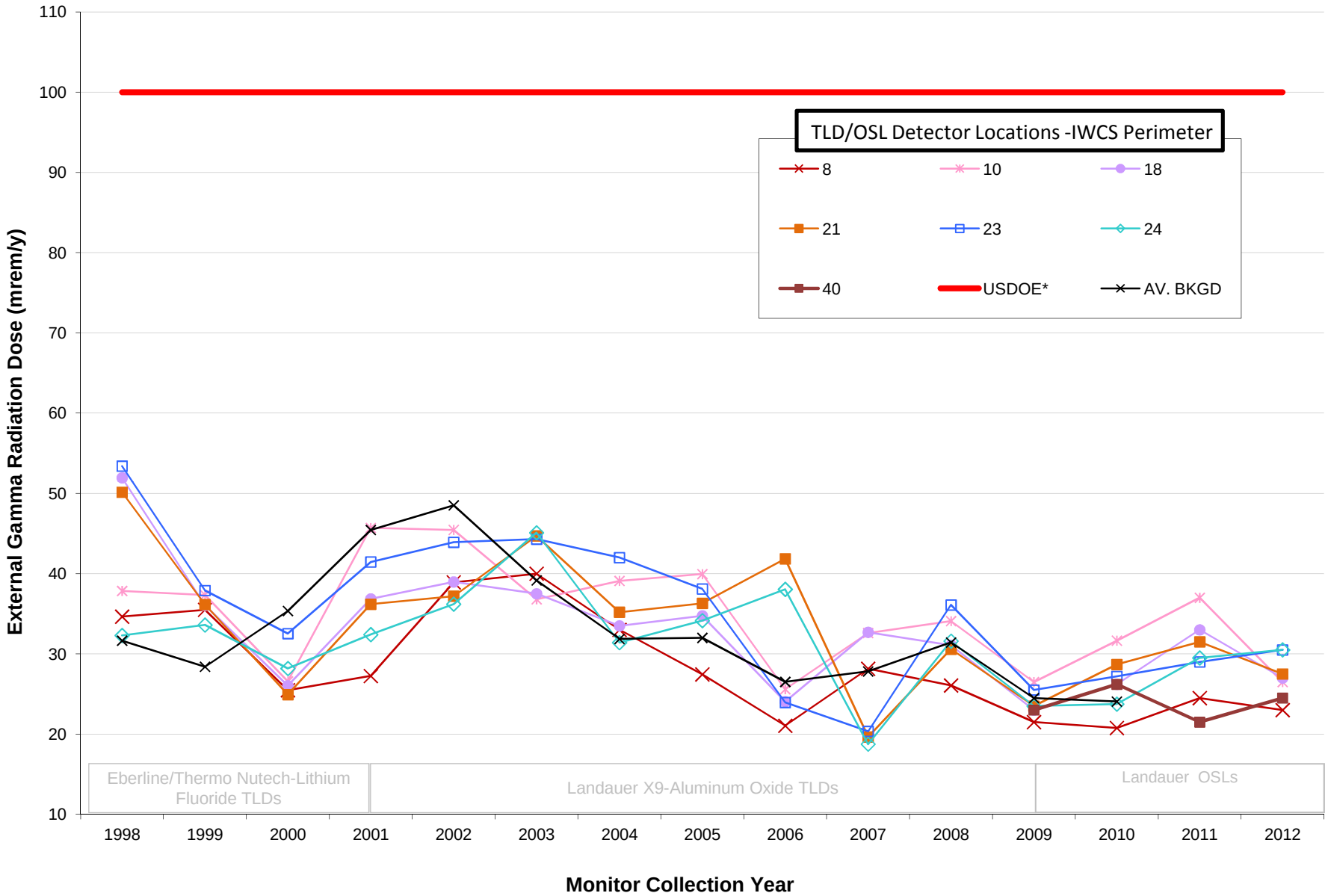
Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure07_SurfaceWaterSediment.mxd

FIGURE 8: EXTERNAL GAMMA RADIATION DOSE RATES AT NFSS PERIMETER



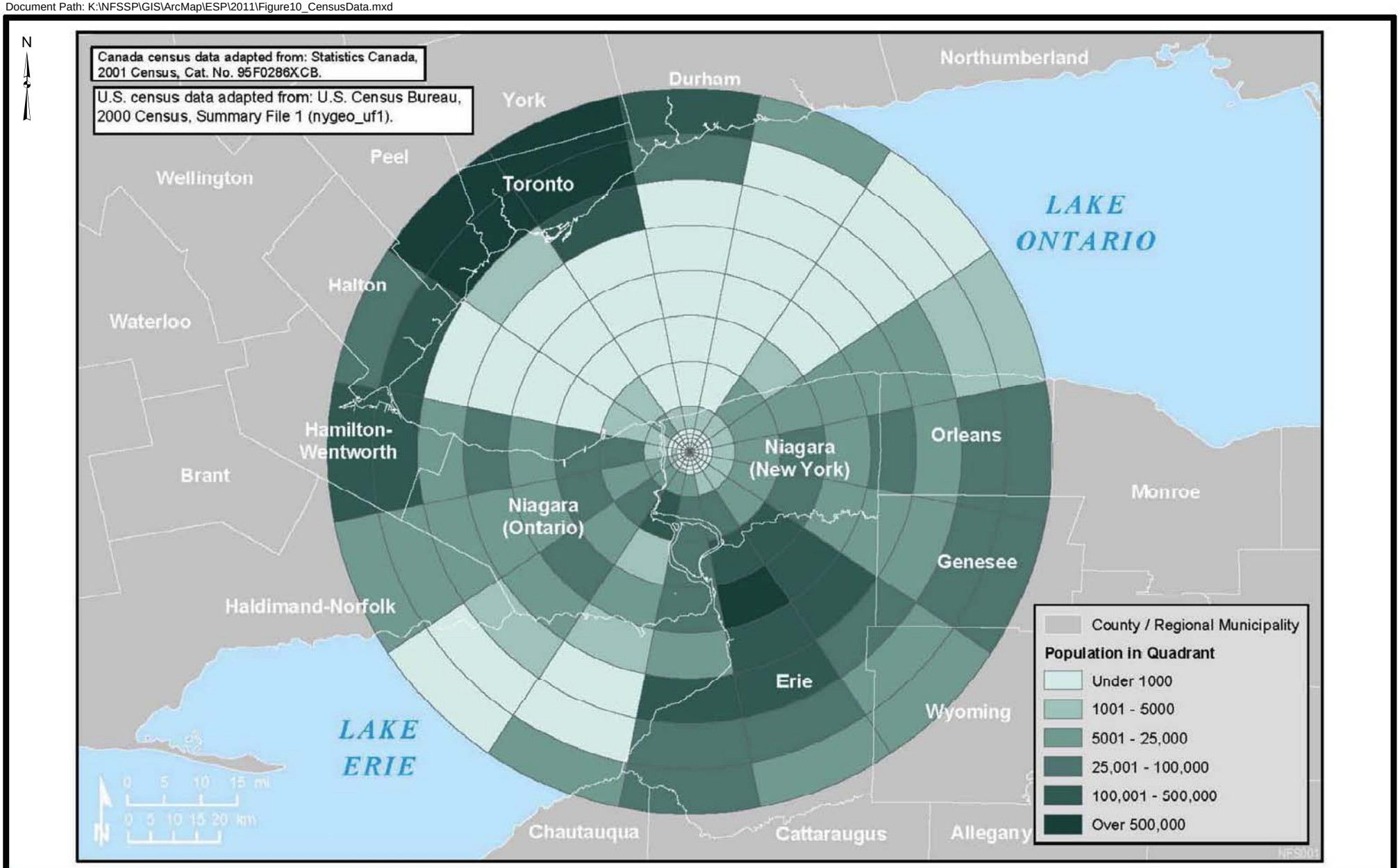
*The United States Department of Energy (USDOE) limit for external gamma radiation is 100 mrem/year above background but the value for each detector location includes background.

FIGURE 9: EXTERNAL GAMMA RADIATION DOSE RATES AT IWCS PERIMETER

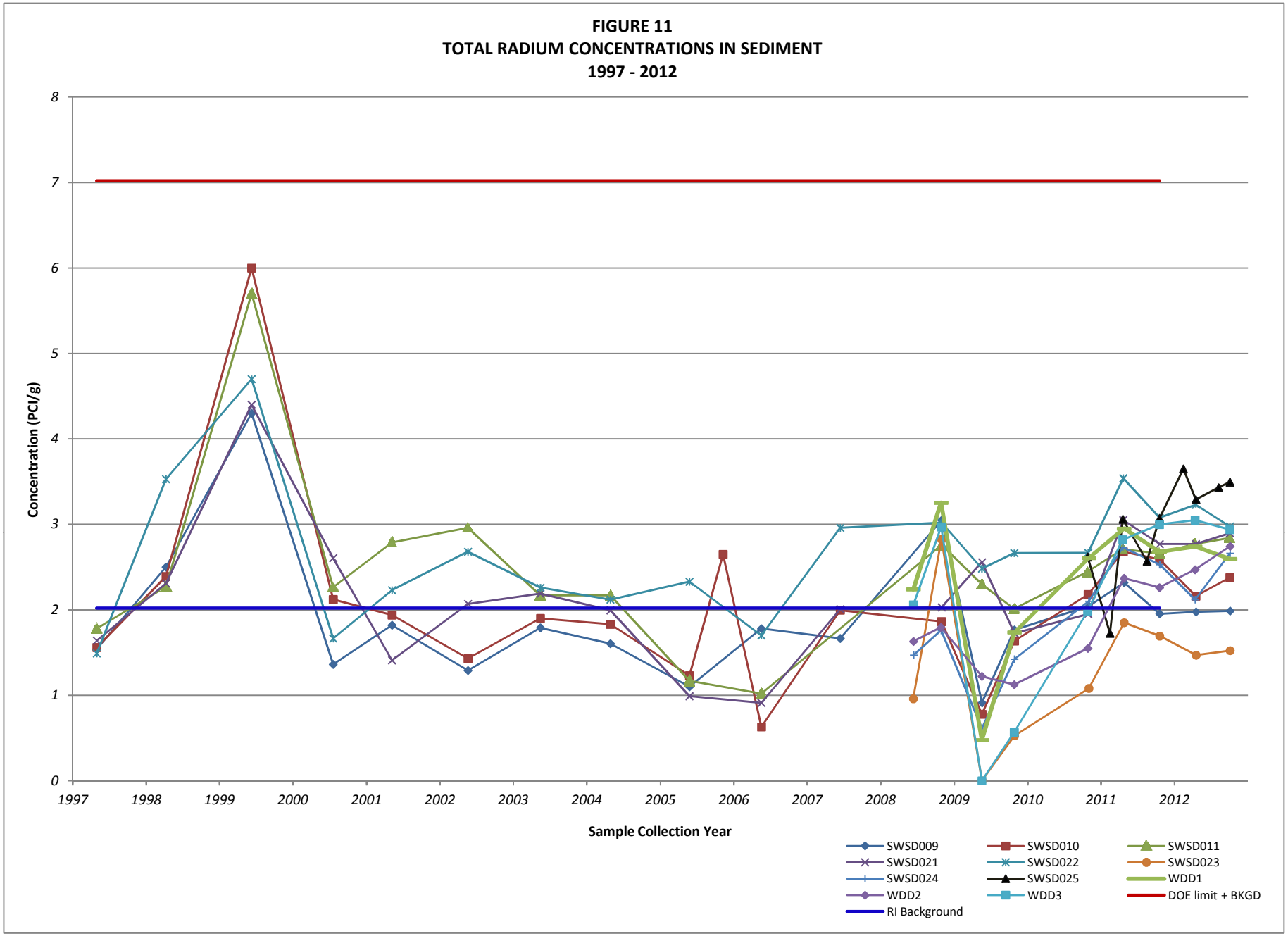


*The United States Department of Energy (USDOE) limit for external gamma radiation is 100 mrem/year above background but the value shown for each detector location includes background.

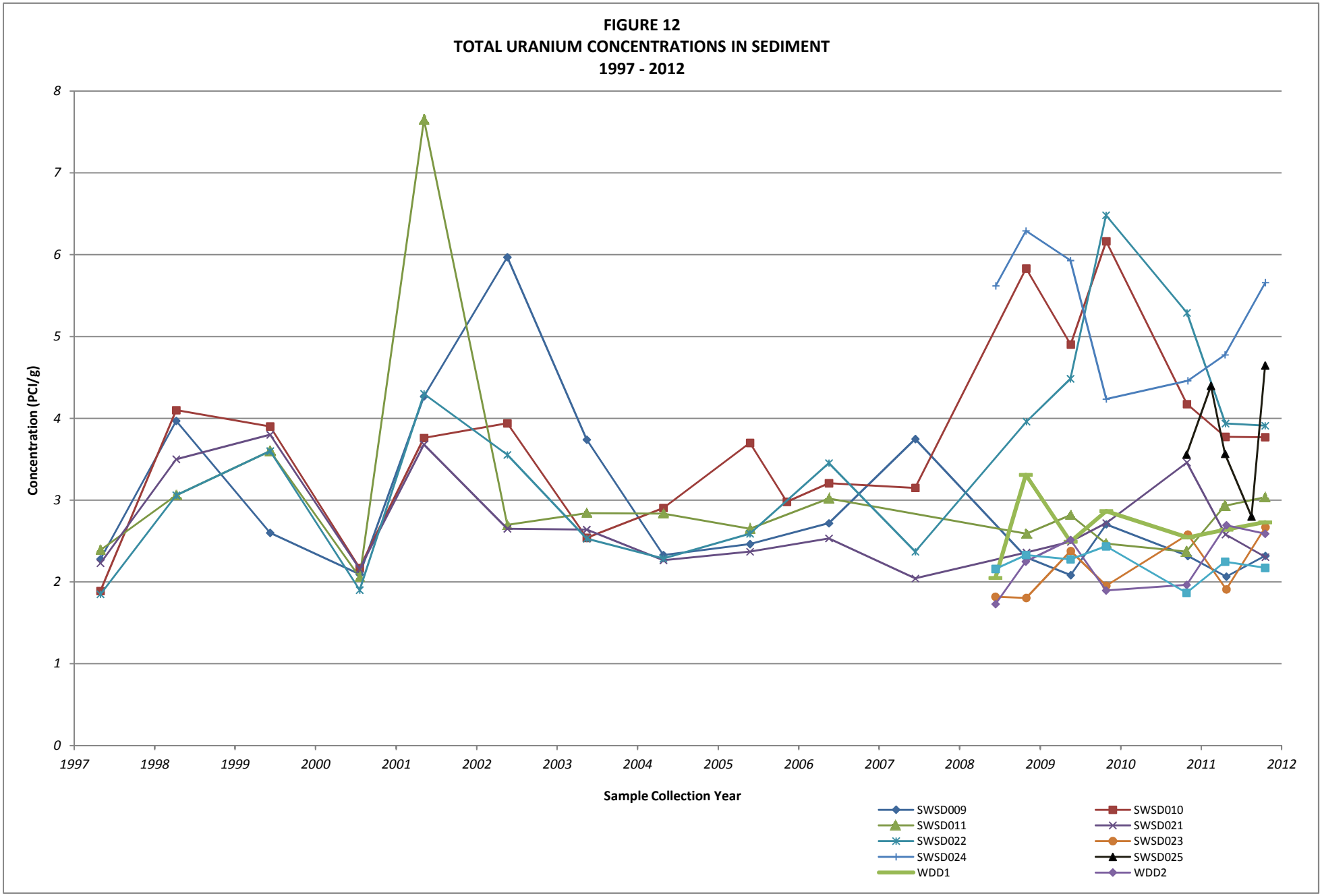
Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure10_CensusData.mxd



US Army Corps of Engineers Buffalo District U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS BUFFALO, NY	CENSUS DATA	
Document Name: Figure10_CensusData.mxd Drawn By: H5TDESPM Date Saved: 10 Sep 2012 Time Saved: 7:53:42 AM	NIAGARA FALLS STORAGE SITE LEWISTON, NEW YORK	FIGURE 10



K:\EDMS\Program\NFSS\Printing\EDMS.mdb
Fig_11_and_12_ESP_Graphs_sed_only.xlsx, Total Radium (Sediment), 12/30/2013



K:\EDMS\Program\NFSS\Printing\EDMS.mdb
Fig_11_and_12_ESP_Graphs_sed_only.xlsx, Total Uranium (Sediment), 12/30/2013

Legend

- Monitoring Well (Lower Water Bearing Zone)
- Groundwater Potentiometric Surface (ft amsl)
- Groundwater Flow Direction
- NFSS Site Boundary

NOTES:
1) All elevations are represented in NGVD 88.

0 175 350 700 Feet

US Army Corps of Engineers
Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

GROUNDWATER POTENTIOMETRIC SURFACE MAP FOR
THE LOWER WATER BEARING ZONE
(MAY 19, 2012 - SEASONAL HIGH)

Name: Figure13_051912LWBZ.mxd
Drawn By: H5TDESPM
Date Saved: 12 Nov 2013
Time Saved: 1:16:53 PM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 13

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2012\Figure13_051912LWBZ.mxd

Legend

- Monitoring Well (Upper Water Bearing Zone)
- Groundwater Potentiometric Surface (ft amsl)
- Groundwater Flow Direction
- NFSS Site Boundary

NOTES:
1) All elevations are represented in NGVD 88.

0 175 350 700 Feet

US Army Corps of Engineers, Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

GROUNDWATER POTENTIOMETRIC SURFACE MAP FOR THE UPPER WATER BEARING ZONE (FEBRUARY 14, 2012 - SEASONAL HIGH)

Name: Figure14_021412UWBZ.mxd
Drawn By: H5TDESPM
Date Saved: 12 Nov 2013
Time Saved: 1:48:16 PM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 14

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2012\Figure14_021412UWBZ.mxd

Legend

- Monitoring Well (Lower Water Bearing Zone)
- Groundwater Potentiometric Surface (ft amsl)
- Groundwater Flow Direction
- NFSS Site Boundary

NOTES:
1) All elevations are represented in NGVD 88.

0 175 350 700 Feet

US Army Corps of Engineers
Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

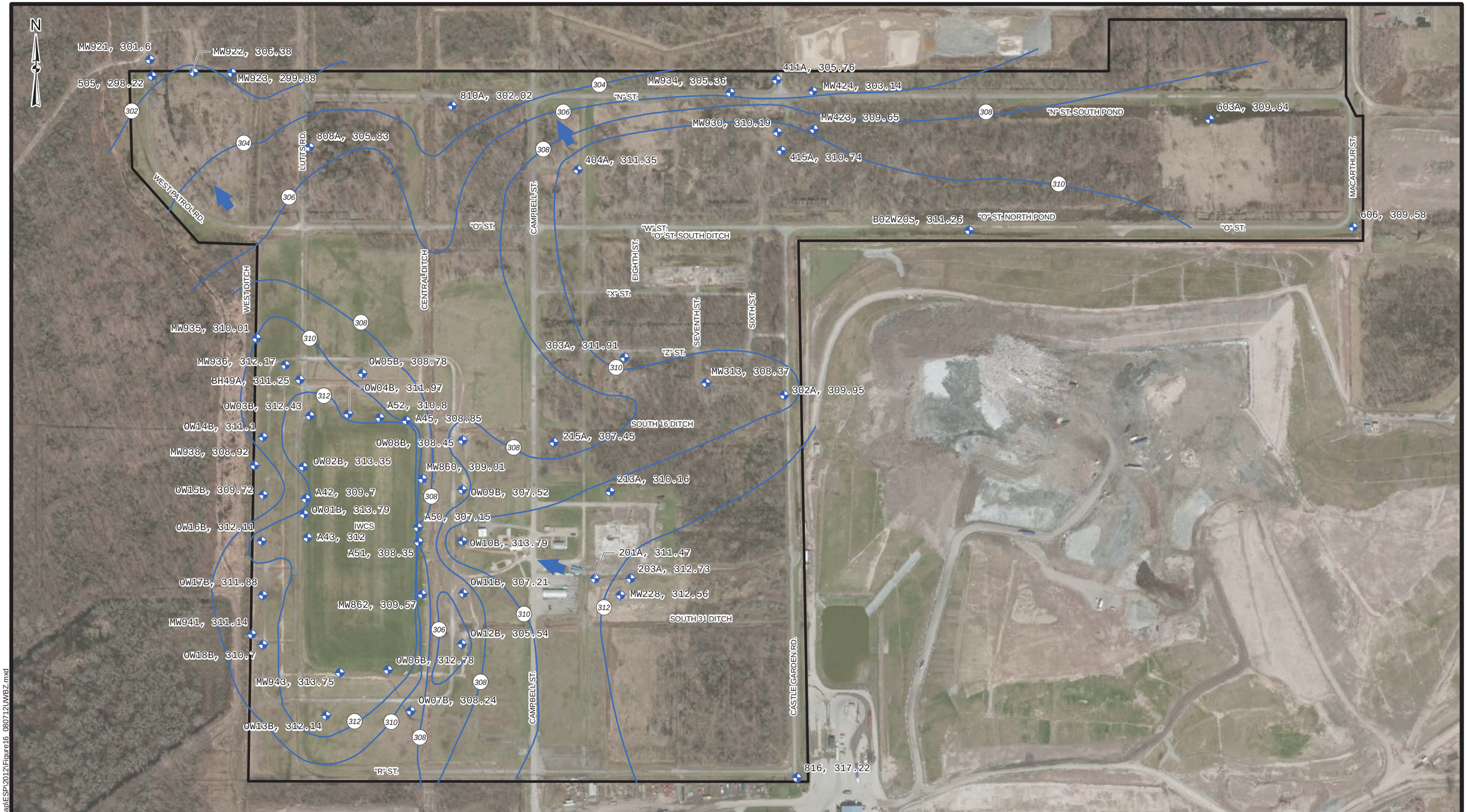
GROUNDWATER POTENTIOMETRIC SURFACE MAP FOR
THE LOWER WATER BEARING ZONE
(OCTOBER 1, 2012 - SEASONAL LOW)

Name: Figure15_100112LWBZ.mxd
Drawn By: H5TDESPM
Date Saved: 12 Nov 2013
Time Saved: 2:28:20 PM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 15

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2012\Figure15_100112LWBZ.mxd



Legend

- Monitoring Well (Upper Water Bearing Zone)
- Groundwater Potentiometric Surface (ft amsl)
- Groundwater Flow Direction
- NFSS Site Boundary

NOTES:
1) All elevations are represented in NGVD 88.

0 175 350 700 Feet

US Army Corps of Engineers, Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

GROUNDWATER POTENTIOMETRIC SURFACE MAP FOR THE UPPER WATER BEARING ZONE (AUGUST 7, 2012 - SEASONAL LOW)

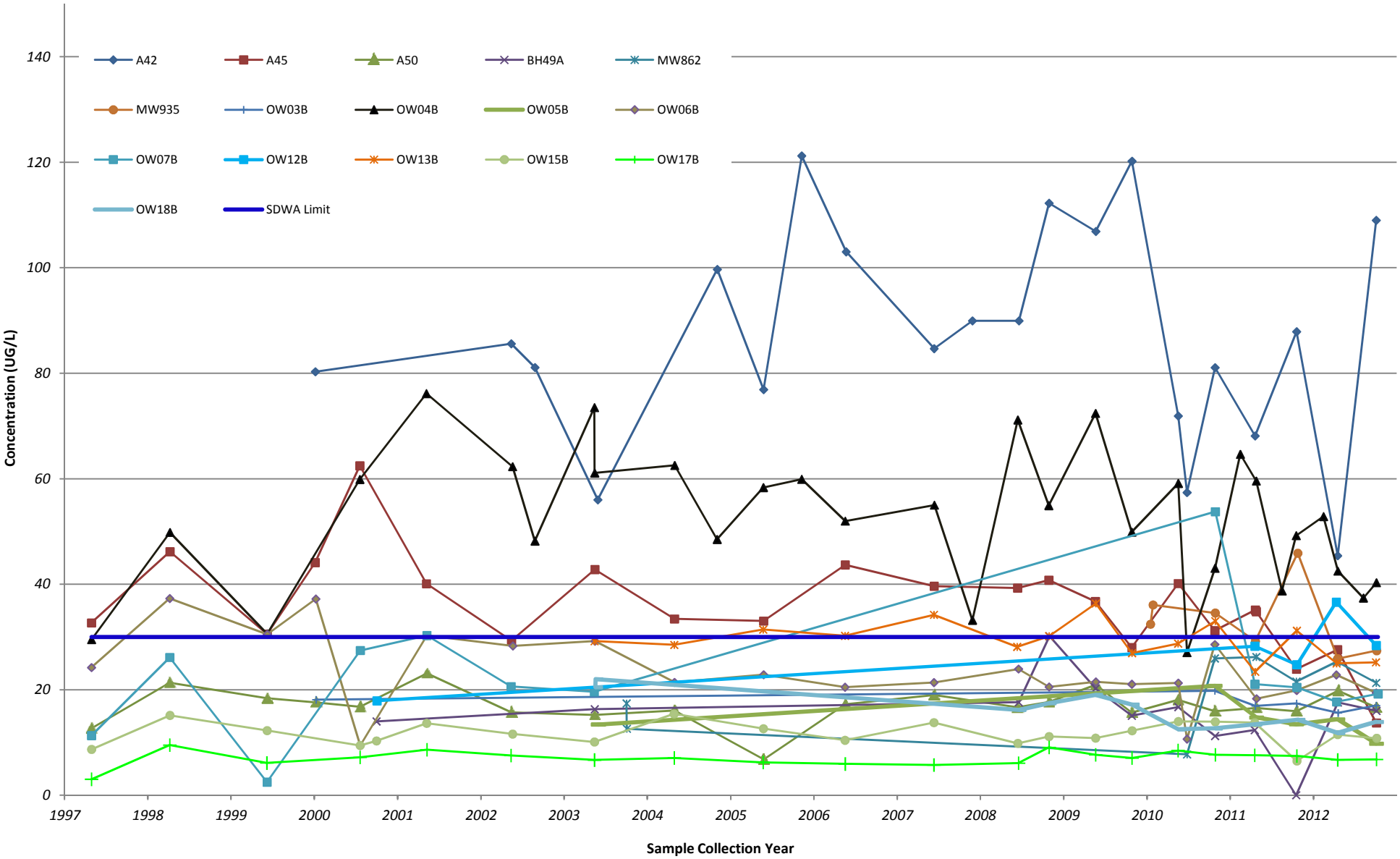
Name: Figure16_080712UWBZ.mxd
Drawn By: H5TDESPM
Date Saved: 12 Nov 2013
Time Saved: 2:28:33 PM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 16

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2012\Figure16_080712UWBZ.mxd

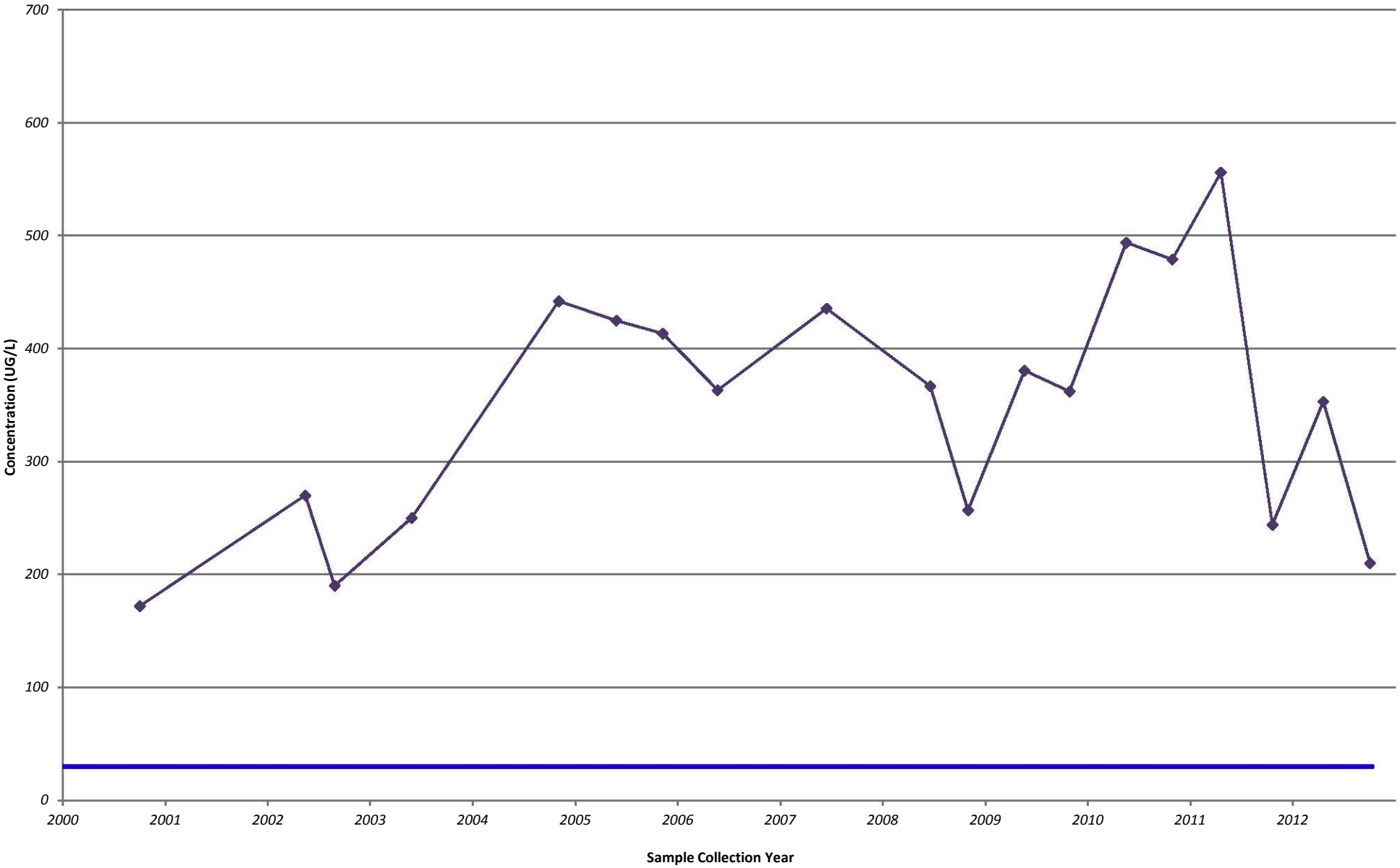
FIGURE 17
TOTAL URANIUM CONCENTRATIONS IN UWBZ WELLS IN THE VICINITY OF THE IWCS
(1997 - 2012)



*The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Total Uranium is 27 pCi/L. Groundwater at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.
Note 1: Non-Detect values assumed to be zero (0) for graphing purposes.
Note 2: Total Uranium trend for OW11B is presented on Figure 18.

K:\NFSSP\GIS\ArcMap\ESP\2011
ESP_Graphs.xlsx, Total Uranium (UWBZ Wells), 11/12/2013

FIGURE 18
TOTAL URANIUM CONCENTRATIONS IN UWBZ WELL OW11B
(2000 - 2012)



*The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Total Uranium is 27 pCi/L. Groundwater at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.
Note 1: Non-Detect values assumed to be zero (0) for graphing purposes.

OW11B
SDWA Limit

K:\NFSSP\GIS\ArcMap\ESP\2011
ESP_Graphs.xlsx, Total Uranium (OW11B), 11/12/2013

TABLES

Table 1: Evolution of NFSS Environmental Surveillance Plan

White background: annual sampling frequency
Blue background: quarterly measurement frequency
Yellow background: semi-annual sampling frequency

Parameter	1997	2000	2003	2008	2009	2010 (fall) (spring 2010 same as 2009)
Radon Flux (Radon-222 emissions)	-----	180 monitoring locations	183 monitoring locations	183 monitoring locations	183 monitoring locations	183 monitoring locations
OSLs (external gamma dose)	18 locations 1 duplicate location	20 locations 1 duplicate location	20 locations 1 duplicate location	20 locations 1 duplicate location	26 locations 1 duplicate location	26 locations 1 duplicate location
Radon-222, -220	18 locations 1 duplicate location	20 locations 1 duplicate location	20 locations 1 duplicate location	20 locations 1 duplicate location	26 locations 1 duplicate location	26 locations 1 duplicate location
Groundwater level measurements	66 wells	66 wells	91 wells	91 wells	91 wells	101 wells
Groundwater Sampling	8 wells: BO2W20S, A45, A50, OW04B, OW06B, OW07B, OW15B, OW17B	8 wells (same)	8 wells (same)	18 wells: The 10 groundwater wells added to the ESP include: OW18B, 313, 505, 302A, A42, BH49A, OW04A, OW11B, 415A, and 201A NOTE: OW13B replaced OW07B in 2004	18 wells (same)	Spring 2010 - Same as 2009 Fall 2010 - See Table 2 for schedule
	Field Parameters: Dissolved oxygen, redox potential, turbidity, temperature, specific conductivity, pH	Field Parameters: Same	Field Parameters: Same	Field Parameters: Same	Field Parameters: Same	
	Water quality analytes: calcium, magnesium, potassium, sodium alkalinity, bicarbonate, carbonate, chloride, nitrate-nitrogen, nitrite-nitrogen, phosphate, sulfate, Total Dissolved Solids, sulfate	Water quality analytes: Same	Water quality analytes: Same	Water quality analytes: alkalinity(calcium carbonate) and total dissolved solids Anions: chloride, fluoride, nitrate, nitrite, ortho-phosphate, sulfate	Water quality analytes: Same Anions: Same	
	Radionuclides: Total uranium, radium, thorium	Radionuclides: Same	Radionuclides: Same	Radionuclides: Same (except analysis for Iso Uranium only for wells OW18B, 313, 505, 302A, A42, BH49A, OW04A, OW11B, and 415A and no radionuclide analysis for well 201A) Also added thorium-228	Radionuclides: Same	
	Metals: Copper, lead, vanadium	Metals: Same	Metals: Same	Metals: Target analyte list, boron, and lithium Volatile Organic Compounds (VOCs): Only wells 415A and 201A	Metals: Same VOCs: same	

Table 1 Continued: Evolution of NFSS Environmental Surveillance Plan

Parameter	1997	2000	2003	2008	2009	2010
Surface water:	SWSD009, SWSD010, SWSD011, SWSD021, SWSD022 Field Parameters: Dissolved oxygen, redox potential, turbidity, temperature, specific conductivity, pH Radionuclides: total uranium radium-226, -228 thorium-230, -232	Same 5 locations Field Parameters: Same Radionuclides: Uranium-234, -235, -238 radium-226, -228 thorium-230, -232	Same 5 locations Field Parameters: Same Radionuclides: Same	Same 5 locations plus 5 additional locations: SWSD023, SWSD024, WDD1, WDD2, WDD3, Field Parameters: Same Radionuclides: Uranium-234, -235, -238 radium-226, -228 thorium-228 (new), -230, -232 Metals: TAL metals, lithium, boron Organics: Polychlorinated Biphenyls (PCBs), pesticides, VOCs, Polycyclic Aromatic Hydrocarbons (PAHs)	Same 10 locations Field Parameters: Same Radionuclides: Same Metals: same Organics: same	Spring 2010 - Same as 2009 See Table 3 for Fall 2010 sampling schedule
Sediment:	SWSD011, SWSD021, SWSD010, SWSD022, SWSD009 Radionuclides: total uranium radium-226, -228 thorium-230, -232	Same 5 locations Radionuclides: Uranium-234, -235, -238 radium-226, -228 thorium-230, -232	Same 5 locations Radionuclides: Same	Same 5 locations plus 5 additional locations: WDD1, WDD2, WDD3, SWSD023, SWSD024 Radionuclides: Uranium-234, -235, -238 radium-226, -228 thorium-228 (new), -230, -232 Metals: TAL metals, lithium, boron Organics: PCBs, pesticides, VOAs, PAHs	Same 10 locations Radionuclides: Same Metals: same Organics: same	Spring 2010 - Same as 2009 See Table 3 for Fall 2010 sampling schedule

Table 2
Environmental Surveillance Program
Groundwater Sampling

Well Location	UWBZ or LWBZ Well	Purpose	*Laboratory Analytical Parameters														**Field Parameters
			Iso Uranium	Iso Thorium	Radium -226	Radium -228	Strontium-90	Technetium-99	Cesium-137	Iso Plutionium	Tritium (H-3)	Metals	VOCs	Alkalinity	TDS	Anions	
A45	UWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW04A	LWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW04B	UWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
BH49A	UWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
BH49	LWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW05A	LWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW05B	UWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
A50	UWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW862	UWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW863	LWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW11A	LWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW11B	UWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW12A	LWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW12B	UWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW06A	LWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW06B	UWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW13A	LWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW13B	UWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW07A	LWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW07B	UWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW03A	LWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW03B	UWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW15A	LWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW15B	UWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
A42	UWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW17A	LWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW17B	UWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW18B	UWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
A55	LWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
505	UWBZ	EU 1	X	X	X	X	X	X	X	X	X	X		X	X	X	X
415A	UWBZ	EU 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW934	UWBZ	EU 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
411A	UWBZ	EU 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BO2W20S	UWBZ	EU 5	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW313	UWBZ	EU 8	X	X	X	X	X	X	X	X	X	X		X	X	X	X
302A	UWBZ	EU 8	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW921 or MW922[1]	UWBZ	EU1 (off-site)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW935	UWBZ	NW (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
201A	UWBZ	EU13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Field Duplicate	-	-	X	X	X	X	X	X	X	X	X	X		X	X	X	X

***Laboratory Analytical Parameters**

VOC - Volatile Organic Compounds
TDS - Total Dissolved Solids
Anions: Chloride
Fluoride
Nitrate
Nitrite
Phosphate
Sulfate

****Field Parameters:**

pH
Temperature
Specific conductivity
Oxidation-Reduction Potential
Dissolved oxygen
Turbidity (If the turbidity reading for a sample is 50 NTUs or greater, the sample will be filtered in the field and both filtered and unfiltered samples at that location will be submitted to the lab for analysis.)

UWBZ - upper water bearing zone
LWBZ - lower water-bearing zone

indicates new well and/or parameter (Fall 2010)
indicates not sampled

[1] MW921 was dry during the Fall 2010 sampling event so well MW922 was sampled as a substitute

Table 3

Environmental Surveillance Program
Surface Water and Sediment Sampling
Niagara Falls Storage Site

	*Laboratory Analytical Parameters														**Field Parameters
Sample Location	**Iso Uranium**	**Iso Thorium**	**Radium -226**	**Radium -228**	**Strontium-90**	**Technetium-99**	**Cesium-137**	**Iso Plutionium**	**Tritium (H-3)**	**Metals**	**PAHs**	**PCBs**	**Pesticides**	**VOCs**	
SWSD009	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD011	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD021	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD022	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD023	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD024	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD025[1]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WDD1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WDD2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WDD3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Field Duplicate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

***Laboratory Analytical Parameters:**
PAH - Polyaromatic Hydrocarbons

PCB - Polycyclic Biphenyls
VOC - Volatile Organic Compounds

indicates new location and/or parameter
indicates not sampled

[1]SWSD025 is located north of the IWCS and is sampled quarterly; summer and winter samples are analyzed for radionuclides and metals only.

****Field Parameters:**
pH
Temperature
Specific conductivity
Oxidation-Reduction Potential
Dissolved oxygen
Turbidity (If the turbidity reading for a sample is 50 NTUs or greater, the sample will be filtered in the field and both filtered and unfiltered samples at that location will be submitted to the lab for analysis.)

Table 4
2012 External Gamma Radiation Dose Rates
Niagara Falls Storage Site

Monitoring Location	Monitoring Station	Gross OSL[a] Data[b] (mrem) (12/21/2011 - 06/21/12)[c]	Gross OSL[a] Data[b] (mrem) (06/21/2012 - 12/21/12)[c]	Normalized Gross TLD Data[d] (mrem/yr)	CY2012 Net OSL[e] Data (mrem/yr)
NFSS Perimeter	1	17	18	35.0	10.5
	1	16	18	34.0	9.5
	7	15	16	31.0	6.5
	7	14	15	29.0	4.5
	11	13	11	24.0	-0.5
	11	11	14	25.0	0.5
	12	16	13	29.0	4.5
	12	13	16	29.0	4.5
	13	15	15	30.0	5.5
	13	15	17	32.0	7.5
	15	16	18	34.0	9.5
	15	17	17	34.0	9.5
	28	19	19	38.0	13.5
	28	18	18	36.0	11.5
	29	21	23	44.0	19.5
	29	18	19	37.0	12.5
	32	13	16	29.0	4.5
	32	14	14	28.0	3.5
	36	19	20	39.0	14.5
	36	17	19	36.0	11.5
	45	14	14	28.0	3.5
	45	12	13	25.0	0.5
	50	18	18	36.0	11.5
	50	17	20	37.0	12.5
	55	14	16	30.0	5.5
	55	14	16	30.0	5.5
	60	14	19	33.0	8.5
	60	16	16	32.0	7.5
	65	23	20	43.0	18.5
	65	19	22	41.0	16.5
	122	18	17	35.0	10.5
	122	16	17	33.0	8.5
	123	14	12	26.0	1.5
	123	16	15	31.0	6.5
IWCS Perimeter	8	11	12	23.0	-1.5
	8	11	12	23.0	-1.5
	10	18	18	36.0	11.5
	10	16	18	34.0	9.5
	18	13	11	24.0	-0.5
	18	15	15	30.0	5.5
	21	13	15	28.0	3.5
	21	14	13	27.0	2.5
	23	14	15	29.0	4.5
	23	16	16	32.0	7.5
	24	15	15	30.0	5.5
	24	15	16	31.0	6.5
	40	11	13	24.0	-0.5
	40	13	12	25.0	0.5
Background[f]	105	9	13	22.0	
	105	11	10	21.0	
	116	11	15	26.0	
	116	12	12	24.0	
	120	11	15	26.0	
	120	14	14	28.0	
Average Background		11.3	13.2	24.5	

a OSL - Optically Stimulated Luminescence dosimeters
b All data reported from the vendor are gross results in mrem per monitoring period.
c Exposure period date format mm/dd/yy.
d Gross data for each period are normalized to a daily dose rate, averaged, and then normalized for the length of the year (365 days).
e Net data are corrected by subtracting the average normalized background value.
f Background Locations: 105-Lewiston-Porter School, 116-Balmer Road and 120-Lewiston Water Pollution Control Center
* Dosimeter damaged in processing at laboratory, reported dose "laboratory best evaluation possible."

Table 5
2012 Radon Gas Concentrations[a]
Average Daily Concentration (pCi/L)[b]

Monitoring Location[c]	Station	12/21/11-6/21/12[d]			6/21/12-12/20/12[d]		
NFSS Perimeter[g]	1	0.5	±	0.04	0.3	±	0.03
	7	0.3	±	0.03	0.3	±	0.03
	11	0.4	±	0.03	<0.2	±	0.02
	12	0.3	±	0.03	<0.2	±	0.02
	12 (dup[e])	0.2	±	0.02	<0.2	±	0.02
	13	0.2	±	0.02	0.2	±	0.02
	15	0.2	±	0.02	0.3	±	0.03
	28	0.3	±	0.03	0.2	±	0.02
	29	0.4	±	0.03	0.3	±	0.02
	36	0.3	±	0.03	0.2	±	0.02
	45	0.2	±	0.02	<0.2	±	0.02
	50	0.3	±	0.03	0.2	±	0.02
	55	0.3	±	0.03	0.2	±	0.02
	60	0.5	±	0.04	0.3	±	0.03
	65	0.3	±	0.03	<0.2	±	0.02
	122	0.3	±	0.03	0.3	±	0.03
	123	0.4	±	0.03	0.2	±	0.02
IWCS[f] Perimeter	8	0.3	±	0.03	0.3	±	0.03
	10	0.3	±	0.03	<0.2	±	0.02
	18	0.4	±	0.03	<0.2	±	0.02
	21	0.4	±	0.03	0.4	±	0.03
	23	0.3	±	0.03	0.3	±	0.02
	24	0.3	±	0.03	<0.2	±	0.02
	40	0.3	±	0.03	0.2	±	0.02
Background	105	0.5	±	0.04	<0.2	±	0.02
	116	0.2	±	0.02	<0.2	±	0.02
	120	0.4	±	0.03	<0.2	±	0.02

a. Radon gas concentrations were measured with RadTrak® detectors. These detectors measure the combined concentration of radon-220 and radon-222 in air.
b. pCi/L - picocuries per liter.
c. Monitoring locations are shown on site map.
d. Detectors were installed (start date) and removed (end date) on the dates listed.
e. A quality control duplicate is collected at the same time and location and is analyzed by the same method for evaluating precision in sampling and analysis.
f. Monitoring locations are at the perimeter of the interim waste containment structure (IWCS).
g. Monitoring locations are at the perimeter of the site with exception of monitoring location 123.

Note: DOE off-site limit for radon-222 concentration is 3.00 pCi/L above background.
(<0.2) Indicates detection limit is reported. Actual result is less than this value.
1 pCi = 0.037 becquerel

Table 6
2012 Radon Flux Monitoring Results[a]
Niagara Falls Storage Site

NFSS Sample ID	Qualifier[d]	Radon-222 Flux (pCi/m²/s)			MDA	NFSS Sample ID	Qualifier[d]	Radon-222 Flux (pCi/m²/s)			MDA
1	U	0.04427	±	0.03548	0.08151	51	U	-0.001725	±	0.02595	0.05445
2	U	0.04767	±	0.02604	0.06987	52	U	0.07699	±	0.03754	0.09918
3	U	0.05067	±	0.02874	0.07845	53	U	0.01204	±	0.0207	0.0525
4	U	0.04201	±	0.02705	0.06896	54	U	0.07274	±	0.03887	0.09683
5	U	0.0283	±	0.02806	0.05773	55	U	0.03087	±	0.02148	0.05463
6	U	0.06388	±	0.03589	0.08468	56	U	0.01383	±	0.02336	0.05691
7	U	0.06422	±	0.03311	0.08397	57	U	0.01482	±	0.02424	0.06227
8		0.07632	±	0.02113	0.0259	58	U	0.014	±	0.02808	0.06298
9	U	0.05629	±	0.03116	0.08451	59	U	0.04575	±	0.0247	0.06698
10	U	0.05468	±	0.02895	0.07701	60	U	0.03631	±	0.02558	0.07057
10-DUP[b]	U	0.04808	±	0.03163	0.07565	60-DUP[b]	U	0.01086	±	0.02311	0.05926
11	U	0.049	±	0.03967	0.07917	61	U	0.0441	±	0.02828	0.07556
12	U	0.05944	±	0.02984	0.07975	62	U	0.002822	±	0.02171	0.04925
13	U	0.0453	±	0.02516	0.06824	63	U	0.002336	±	0.01748	0.04377
14	U	0.04219	±	0.02824	0.06797	64	U	0.03681	±	0.02222	0.06379
15	U	0.04135	±	0.02624	0.0709	65		0.9917	±	0.07141	0.0791
16	U	0.03061	±	0.02198	0.05694	66	U	0.002871	±	0.02242	0.05136
17	U	0.07145	±	0.03433	0.08724	67	U	-0.0005865	±	0.01813	0.0454
18	U	0.07931	±	0.04449	0.1062	68	U	0.03008	±	0.01907	0.05397
19	U	0.0593	±	0.03083	0.07743	69	U	0.03062	±	0.02406	0.05964
20	U	-0.0008439	±	0.02608	0.05495	70	U	0.05715	±	0.03253	0.08092
20-DUP[b]	U	0.03126	±	0.02464	0.06264	70-DUP[b]	U	0.01454	±	0.0214	0.05834
21	U	0.0345	±	0.02908	0.06543	71	U	0.03463	±	0.02525	0.06356
22	U	0.02072	±	0.02355	0.06358	72	U	0.05283	±	0.02887	0.0768
23	U	0.03685	±	0.02788	0.06516	73	U	0.2699	±	0.1501	0.4027
24	U	0.03472	±	0.03412	0.07077	74	U	0.06313	±	0.0303	0.08002
25	U	0.08858	±	0.04056	0.1052	75	U	0.01066	±	0.02269	0.05819
26		0.0503	±	0.01965	0.04252	76	U	0.002915	±	0.02516	0.05437
27		0.0624	±	0.01905	0.009847	77	U	0.05301	±	0.02692	0.07168
28	U	0.05355	±	0.03651	0.09097	78	U	-0.006051	±	0.0223	0.04887
29	U	0.04946	±	0.02979	0.06891	79	U	0.0496	±	0.02748	0.07372
30	U	0.08241	±	0.03955	0.09909	80		0.07882	±	0.02198	0.05028
30-DUP[b]		0.08545	±	0.02237	0.04263	80-DUP[b]	U	0.06902	±	0.03535	0.09176
31	U	0.05957	±	0.03142	0.08522	81		0.116	±	0.02992	0.04273
32	U	0.06252	±	0.03264	0.0797	82	U	0.04247	±	0.03029	0.06601
33	U	0.03446	±	0.02644	0.07329	83	U	0.05933	±	0.03299	0.08262
34	U	0.03236	±	0.02309	0.05967	84	U	0.04951	±	0.0305	0.07374
35	U	0.0572	±	0.04147	0.08469	85	U	0.02002	±	0.02657	0.06828
36	U	0.004358	±	0.01645	0.04563	86	U	0.02918	±	0.02939	0.06954
37	U	0.02731	±	0.02266	0.05696	87	U	0.009483	±	0.01999	0.05061
38	U	0.009334	±	0.01968	0.04982	88	U	0.0179	±	0.0279	0.06888
39	U	0.01057	±	0.0225	0.05769	89	U	0.03794	±	0.03713	0.06668
40	U	0.03462	±	0.01883	0.05328	90	U	0.04874	±	0.02889	0.06895
40-DUP[b]	U	0.01274	±	0.02226	0.05401	90-DUP[b]	U	0.03804	±	0.02394	0.06483
41	U	0.04153	±	0.02662	0.07379	91	U	0.05781	±	0.04102	0.08076
42	U	0.002609	±	0.02015	0.04786	92	U	0.002991	±	0.01653	0.04121
43	U	0.05104	±	0.03319	0.08255	93	U	0.01458	±	0.02146	0.0585
44	U	0.02179	±	0.02568	0.06293	94	U	0.05454	±	0.02601	0.07013
45	U	0.03822	±	0.03368	0.07486	95	U	0.01255	±	0.0233	0.05666
46	U	0.05002	±	0.027	0.07483	96	U	-0.01062	±	0.02042	0.04227
47	U	0.001622	±	0.02114	0.04767	97	U	0.008713	±	0.02156	0.05184
48	U	0.04999	±	0.04321	0.08042	98	U	0.06195	±	0.04663	0.08848
49	U	0.0523	±	0.03723	0.07648	99	U	0.01489	±	0.02192	0.05974
50	U	0.008392	±	0.02076	0.04993	100	U	0.04146	±	0.02941	0.067
50-DUP[b]	U	0.04974	±	0.0256	0.06903	100-DUP[b]	U	0.02245	±	0.02821	0.06732

Table 6 (cont.)
2012 Radon Flux Monitoring Results[a]
Niagara Falls Storage Site

NFSS Sample ID	Qualifier	Radon-222 Flux (pCi/m²/s)			MDA	NFSS Sample ID	Qualifier	Radon-222 Flux (pCi/m²/s)			MDA
101	U	0.05902	±	0.03423	0.09035	151	U	0.005865	±	0.02074	0.05224
102	U	0.01263	±	0.02143	0.05435	152	U	0.02089	±	0.02267	0.06624
103	U	0.01152	±	0.02616	0.06409	153	U	0.04279	±	0.03069	0.07639
104	U	0.03764	±	0.02179	0.06037	154	U	0.05575	±	0.0335	0.09142
105	U	-0.001028	±	0.01849	0.04318	155	U	0.06978	±	0.03366	0.0874
106	U	0.01552	±	0.02191	0.05965	156	U	0.05883	±	0.03543	0.08114
107	U	0.05645	±	0.04096	0.08947	157	U	0.003006	±	0.02192	0.05556
108	U	0.02679	±	0.02048	0.05729	158	U	0.009919	±	0.02621	0.06086
109	U	0.01465	±	0.02155	0.05874	159	U	0.03473	±	0.03862	0.06931
110	U	0.00467	±	0.01731	0.04338	160	U	0.03437	±	0.03324	0.08527
110-DUP[b]	U	0.004674	±	0.01732	0.04342	160-DUP[b]	U	0.00636	±	0.01952	0.05404
111	U	0.02847	±	0.02606	0.0615	161	U	0.05099	±	0.04052	0.08567
112	U	0.008357	±	0.02188	0.056	162	U	0.04099	±	0.03044	0.07121
113	U	0.04743	±	0.02612	0.06986	163	U	0.03636	±	0.03829	0.0779
114	U	0.001209	±	0.01514	0.04216	164	U	0.02459	±	0.03534	0.08494
115	U	0.01912	±	0.02058	0.05501	165	U	0.03506	±	0.0245	0.06789
116	U	0.04449	±	0.02441	0.06612	166	U	0.01858	±	0.02285	0.06104
117	U	0.01487	±	0.02188	0.05963	167	U	0.04152	±	0.02698	0.07638
118	U	0.04518	±	0.02523	0.06646	168	U	0.01875	±	0.01918	0.05556
119	U	0.005617	±	0.02333	0.05396	169	U	0.033	±	0.03353	0.08493
120	U	0.07483	±	0.03731	0.09891	170	U	0.0109	±	0.01779	0.05502
120-DUP[b]	U	0.04327	±	0.02719	0.07535	170-DUP[b]	U	0.0146	±	0.02706	0.06947
121	U	0.02982	±	0.03169	0.06203	171	U	0.07547	±	0.03683	0.095
122	U	0.0171	±	0.02749	0.06339	172	U	0.04037	±	0.02473	0.06852
123	U	0.01548	±	0.01981	0.05299	173		0.09917	±	0.0287	0.06642
124	U	0.01467	±	0.02159	0.05885	174	U	0.06963	±	0.03739	0.09628
125	U	0.0135	±	0.02073	0.05257	175	U	0.107	±	0.05536	0.1257
126	U	0.03228	±	0.02054	0.05747	176	U	0.06285	±	0.03799	0.09099
127	U	0.02126	±	0.02909	0.07199	177	U	0.06235	±	0.0453	0.0979
128	U	0.03206	±	0.02931	0.07747	178	U	0.07086	±	0.04497	0.1141
129	U	-0.02856	±	0.02002	0.01952	179	U	0.1047	±	0.04569	0.1119
130	U	0.03913	±	0.02776	0.07129	180	U	0.05221	±	0.04002	0.08811
130-DUP[b]	U	0.05585	±	0.03108	0.08257	180-DUP[b]	U	0.01485	±	0.03493	0.07707
131	U	0.007666	±	0.02696	0.06547	181[c]	U	0.03854	±	0.02834	0.07097
132	U	0.02722	±	0.01988	0.05706	182[c]	U	0.05149	±	0.03314	0.08903
133	U	0.04053	±	0.02847	0.07744	183[c]	**not monitored**		±		
134	U	0.04519	±	0.02566	0.07052	Average background	U	0.04502	(pCi/m²/s)		
135	U	0.0608	±	0.04352	0.09247						
136	U	0.05896	±	0.03344	0.09128						
137	U	0.09424	±	0.04627	0.09705						
138	U	0.03283	±	0.0309	0.07435						
139	U	0.03656	±	0.03026	0.08278						
140	U	0.03611	±	0.0229	0.06407						
140-DUP[b]	U	0.009592	±	0.02373	0.05707						
141	U	0.01628	±	0.02396	0.0653						
142	U	0.03664	±	0.02817	0.06997						
143	U	0.0179	±	0.02779	0.07139						
144	U	0.04998	±	0.02679	0.07311						
145	U	0.0254	±	0.02496	0.06616						
146	U	0.02135	±	0.02606	0.07055						
147	U	0.03874	±	0.0292	0.07297						
148	U	0.03445	±	0.02896	0.06277						
149	U	0.04274	±	0.02655	0.07515						
150	U	0.00959	±	0.02372	0.05705						
150-DUP[b]	U	0.04824	±	0.03449	0.08087						

IWCS	Value	Units
Average[e]	0.04245	(pCi/m²/s)
High[f]	0.99170	(pCi/m²/s)
Low	-0.02856	(pCi/m²/s)

NOTE: The EPA Standard for Radon-222 Flux is 20 pCi/m²/sec
a. Radon-222 flux was performed on August 1-2, 2012
b. Every 10th canister is counted twice as a quality control (QC) duplicate to evaluate analytical precision.
c. Background:
181-Lewiston-Porter Central School
182-Lewiston Water Pollution Control Center
183-Balmer Rd. (CWM Secondary Gate) - was not monitored due to lack of canisters
d. Validated Qualifier: **U** - indicates that no analyte was detected (Non-Detect).
e. Average of all values (detects and non-detects)
f. Highest detectable finding.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.191 U	-0.45507 U	-0.066 U	-0.20844 U	1.07 U
GROSS ALPHA	PCI/L	-	Not Anaylzed	Not Anaylzed	4.79	8.12 J	Not Anaylzed
GROSS BETA	PCI/L	-	Not Anaylzed	Not Anaylzed	14.7	7.88	Not Anaylzed
PLUTONIUM-238	PCI/L	15	0.092 U	-0.04 U	-0.029 U	0 U	-0.029 U
PLUTONIUM-239/240	PCI/L	15	0.042 U	0.007 U	0.087 U	0.037 U	-0.061 U
RADIUM-226	PCI/L	3	0.118 U	0.522	0.206 U	0.173 U	-0.317 U
RADIUM-228	PCI/L	5	0.565 U	0.329 U	0.0144 U	0.352 U	0.423 U
TOTAL RADIUM	PCI/L	5	Not Detected	0.522	Not Detected	Not Detected	Not Detected
RUTHENIUM-106	PCI/L	-	Not Anaylzed	Not Anaylzed	9.3 U	Not Anaylzed	0.902 U
STRONTIUM-90	PCI/L	8	-0.036 U	0.32 U	0.549 U	0.25 U	0.15 U
TECHNETIUM-99	PCI/L	900	4.29 U	0.112 U	9.93 U	10.1 U	0.567 U
THORIUM-228	PCI/L	15	0.132	0.064 U	0.021	-0.017 U	0.025 U
THORIUM-230	PCI/L	15	0.068 U	0.014 U	0 U	-0.017 U	0 U
THORIUM-232	PCI/L	15	0.007 U	0.028 U	-0.014 U	0.033 U	0.024 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	2,061	292	2,837	236	596
TOTAL URANIUM	UG/L	30	3.91	5.18	12.2	9.3	12.9
RADIONUCLIDES (FILTERED)							
CESIUM-137	PCI/L	200	-0.191 U	-0.26554 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
PLUTONIUM-238	PCI/L	15	0.089 U	-0.014 U	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES (FILTERED)							
PLUTONIUM-239/240	PCI/L	15	0.034 U	-0.023 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
RADIUM-226	PCI/L	3	0.213	0.608	Not Anaylzed	Not Anaylzed	Not Anaylzed
RADIUM-228	PCI/L	5	0.524 U	-0.155 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
TOTAL RADIUM	PCI/L	5	0.213	0.608	Not Analyzed	Not Analyzed	Not Analyzed
STRONTIUM-90	PCI/L	8	-0.229 U	-0.328 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
TECHNETIUM-99	PCI/L	900	R	-2.48 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
THORIUM-228	PCI/L	15	-0.007 U	0.018 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
THORIUM-230	PCI/L	15	-0.018 U	0.056 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
THORIUM-232	PCI/L	15	-0.002 U	0 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
TRITIUM (HYDROGEN-3)	PCI/L	20000	2,014	286	Not Anaylzed	Not Anaylzed	Not Anaylzed
TOTAL URANIUM	UG/L	30	3.97	6.04	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0.59429 U	0.45 U	0.52798 U	-0.316 U	-0.45508 U
GROSS ALPHA	PCI/L	-	1.58 U	13.1	8.8	7.06	4.68
GROSS BETA	PCI/L	-	0.673 U	6.61	4.39	10.8	6.06
PLUTONIUM-238	PCI/L	15	-0.007 U	-0.058 U	0.003 U	0.016 U	-0.022 U
PLUTONIUM-239/240	PCI/L	15	0.013 U	-0.014 U	-0.002 U	-0.009 U	R
RADIUM-226	PCI/L	3	0.103 U	0 U	0.103 U	0.29 U	0 U
RADIUM-228	PCI/L	5	-0.0577 U	0.759 U	0.18 U	0.191 U	0.71 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
RUTHENIUM-106	PCI/L	-	Not Anaylzed	0 U	Not Anaylzed	-5.65 U	Not Anaylzed
STRONTIUM-90	PCI/L	8	0.164 U	-0.348 U	-0.083 U	0.084 U	0.552 U
TECHNETIUM-99	PCI/L	900	-19.8 U	9.49 U	25.4 U	15.7 U	4.21 U
THORIUM-228	PCI/L	15	0.131	0 U	-0.001 U	0.008 U	-0.022 U
THORIUM-230	PCI/L	15	0.022 U	-0.017 U	-0.009 U	-0.015 U	-0.022 U
THORIUM-232	PCI/L	15	-0.002 U	-0.025 U	0.019 U	0.022 U	0 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	304	-34.2 U	2.62 U	667	336
TOTAL URANIUM	UG/L	30	8.15	15.3	5.94	15.2	5.04
RADIONUCLIDES (FILTERED)							
CESIUM-137	PCI/L	200	Not Anaylzed	Not Anaylzed	2.3762 U	Not Anaylzed	Not Anaylzed
PLUTONIUM-238	PCI/L	15	Not Anaylzed	Not Anaylzed	0.004 U	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES (FILTERED)							
PLUTONIUM-239/240	PCI/L	15	Not Anaylzed	Not Anaylzed	0.062 U	Not Anaylzed	Not Anaylzed
RADIUM-226	PCI/L	3	Not Anaylzed	Not Anaylzed	0.238 U	Not Anaylzed	Not Anaylzed
RADIUM-228	PCI/L	5	Not Anaylzed	Not Anaylzed	0.449 U	Not Anaylzed	Not Anaylzed
TOTAL RADIUM	PCI/L	5	Not Analyzed	Not Analyzed	Not Detected	Not Analyzed	Not Analyzed
STRONTIUM-90	PCI/L	8	Not Anaylzed	Not Anaylzed	0.765 U	Not Anaylzed	Not Anaylzed
TECHNETIUM-99	PCI/L	900	Not Anaylzed	Not Anaylzed	-0.658 U	Not Anaylzed	Not Anaylzed
THORIUM-228	PCI/L	15	Not Anaylzed	Not Anaylzed	0.012 U	Not Anaylzed	Not Anaylzed
THORIUM-230	PCI/L	15	Not Anaylzed	Not Anaylzed	-0.002 U	Not Anaylzed	Not Anaylzed
THORIUM-232	PCI/L	15	Not Anaylzed	Not Anaylzed	0 U	Not Anaylzed	Not Anaylzed
TRITIUM (HYDROGEN-3)	PCI/L	20000	Not Anaylzed	Not Anaylzed	-26.2 U	Not Anaylzed	Not Anaylzed
TOTAL URANIUM	UG/L	30	Not Anaylzed	Not Anaylzed	5.94	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	02/14/12	04/16/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.193 U	-0.56714 U	0.029 U	-1.88 U	-0.328 U
GROSS ALPHA	PCI/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	6.49
GROSS BETA	PCI/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	11.5
PLUTONIUM-238	PCI/L	15	-0.006 U	-0.072 U	-0.095 U	0 U	0.029 U
PLUTONIUM-239/240	PCI/L	15	-0.033 U	0.029 U	0.056 U	-0.029 U	-0.066 U
RADIUM-226	PCI/L	3	-0.191 U	0 U	0.0698 U	0.286 U	0.535 U
RADIUM-228	PCI/L	5	0.494 U	0.955 J	0.0941 U	0.513 J	1.94
TOTAL RADIUM	PCI/L	5	Not Detected	0.955	Not Detected	0.513	1.94
RUTHENIUM-106	PCI/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	-8.05 U
STRONTIUM-90	PCI/L	8	-0.306 U	0.177 U	0.085 U	-0.263 U	-0.277 U
TECHNETIUM-99	PCI/L	900	R	13.6 U	-0.0956 U	2.26 U	10 U
THORIUM-228	PCI/L	15	-0.031 U	-0.01 U	0.071 U	0.875 J	-0.05 U
THORIUM-230	PCI/L	15	0.007 U	-0.037 U	-0.019 U	0.429	0.019 U
THORIUM-232	PCI/L	15	-0.015 U	-0.028 U	0.002 U	0.017 U	0.019 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	92.3 U	-63.1 U	39.9 U	1,281	846
TOTAL URANIUM	UG/L	30	1.99	1.51	14.1	Not Anaylzed	11.5 J
RADIONUCLIDES (FILTERED)							
CESIUM-137	PCI/L	200	Not Anaylzed	Not Anaylzed	Not Anaylzed	-0.718 U	Not Anaylzed
PLUTONIUM-238	PCI/L	15	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.092 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	02/14/12	04/16/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES (FILTERED)							
PLUTONIUM-239/240	PCI/L	15	Not Anaylzed	Not Anaylzed	Not Anaylzed	-0.087 U	Not Anaylzed
RADIUM-226	PCI/L	3	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.191 U	Not Anaylzed
RADIUM-228	PCI/L	5	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.0578 U	Not Anaylzed
TOTAL RADIUM	PCI/L	5	Not Analyzed	Not Analyzed	Not Analyzed	Not Detected	Not Analyzed
STRONTIUM-90	PCI/L	8	Not Anaylzed	Not Anaylzed	Not Anaylzed	-0.245 U	Not Anaylzed
TECHNETIUM-99	PCI/L	900	Not Anaylzed	Not Anaylzed	Not Anaylzed	2.89 U	Not Anaylzed
THORIUM-228	PCI/L	15	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.581 J	Not Anaylzed
THORIUM-230	PCI/L	15	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.11 U	Not Anaylzed
THORIUM-232	PCI/L	15	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.02 U	Not Anaylzed
TRITIUM (HYDROGEN-3)	PCI/L	20000	Not Anaylzed	Not Anaylzed	Not Anaylzed	1,340	Not Anaylzed
TOTAL URANIUM	UG/L	30	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	WDD1	WDD1	WDD2
Field Sample Identifier :			SWSD025	SWSD025	WDD1	WDD1	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			08/07/12	10/02/12	04/12/12	10/03/12	04/12/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.959 U	0.4837 U	-1.42 U	-1.0435 U	-1.49 U
GROSS ALPHA	PCI/L	-	Not Anaylzed	2.68 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
GROSS BETA	PCI/L	-	Not Anaylzed	5	Not Anaylzed	Not Anaylzed	Not Anaylzed
PLUTONIUM-238	PCI/L	15	0 U	-0.01 U	0.301 U	0.008 U	-0.247 U
PLUTONIUM-239/240	PCI/L	15	0.015 U	0.024 U	0.065 U	-0.006 U	R
RADIUM-226	PCI/L	3	-0.131 U	0.056 U	0.274 U	0.724	-0.068 U
RADIUM-228	PCI/L	5	0.225 U	0.832 J	0.295 U	1.08 U	0.486 U
TOTAL RADIUM	PCI/L	5	Not Detected	0.832	Not Detected	0.724	Not Detected
RUTHENIUM-106	PCI/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
STRONTIUM-90	PCI/L	8	0.201 U	-0.036 U	0.063 U	0.516 U	0.601 U
TECHNETIUM-99	PCI/L	900	-31.5 U	16.8 J	3.52 U	19.3 U	-0.152 U
THORIUM-228	PCI/L	15	R	-0.012 U	-0.141 U	0.007 U	-0.206 U
THORIUM-230	PCI/L	15	-0.009 U	-0.035 U	0.042 U	-0.01 U	-0.004 U
THORIUM-232	PCI/L	15	-0.009 U	-0.058 U	-0.065 U	0 U	0.077 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	444	306	-26.5 U	13.3 U	114 U
TOTAL URANIUM	UG/L	30	13.9	5.12	1.45	0.878	1.5
RADIONUCLIDES (FILTERED)							
CESIUM-137	PCI/L	200	0.209 U	Not Anaylzed	Not Anaylzed	-0.73081 U	Not Anaylzed
PLUTONIUM-238	PCI/L	15	-0.013 U	Not Anaylzed	Not Anaylzed	-0.004 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	WDD1	WDD1	WDD2
Field Sample Identifier :			SWSD025	SWSD025	WDD1	WDD1	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			08/07/12	10/02/12	04/12/12	10/03/12	04/12/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES (FILTERED)							
PLUTONIUM-239/240	PCI/L	15	0.02 U	Not Anaylzed	Not Anaylzed	-0.006 U	Not Anaylzed
RADIUM-226	PCI/L	3	0.128 U	Not Anaylzed	Not Anaylzed	0.159 U	Not Anaylzed
RADIUM-228	PCI/L	5	0.0984 U	Not Anaylzed	Not Anaylzed	0.318 U	Not Anaylzed
TOTAL RADIUM	PCI/L	5	Not Detected	Not Analyzed	Not Analyzed	Not Detected	Not Analyzed
STRONTIUM-90	PCI/L	8	0.28 U	Not Anaylzed	Not Anaylzed	0.174 U	Not Anaylzed
TECHNETIUM-99	PCI/L	900	-29.6 U	Not Anaylzed	Not Anaylzed	1.33 U	Not Anaylzed
THORIUM-228	PCI/L	15	R	Not Anaylzed	Not Anaylzed	-0.021 U	Not Anaylzed
THORIUM-230	PCI/L	15	-0.002 U	Not Anaylzed	Not Anaylzed	0.006 U	Not Anaylzed
THORIUM-232	PCI/L	15	-0.026 U	Not Anaylzed	Not Anaylzed	0 U	Not Anaylzed
TRITIUM (HYDROGEN-3)	PCI/L	20000	237	Not Anaylzed	Not Anaylzed	44.9 U	Not Anaylzed
TOTAL URANIUM	UG/L	30	18.9	Not Anaylzed	Not Anaylzed	0.768	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD2	WDD3	WDD3
Field Sample Identifier :			WDD2	WDD3	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/03/12	04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**			
RADIONUCLIDES					
CESIUM-137	*PCI/L*	200	-0.16512 U	-0.303 U	0.46953 U
GROSS ALPHA	*PCI/L*	-	Not Anaylzed	Not Anaylzed	Not Anaylzed
GROSS BETA	*PCI/L*	-	Not Anaylzed	Not Anaylzed	Not Anaylzed
PLUTONIUM-238	*PCI/L*	15	-0.017 U	0.223 U	-0.002 U
PLUTONIUM-239/240	*PCI/L*	15	0.057 U	-0.008 U	0.077 U
RADIUM-226	*PCI/L*	3	0.0912 U	0.506	0.343 U
RADIUM-228	*PCI/L*	5	-1 U	0.0765 U	0.0487 U
TOTAL RADIUM	*PCI/L*	5	Not Detected	0.506	Not Detected
RUTHENIUM-106	*PCI/L*	-	Not Anaylzed	Not Anaylzed	Not Anaylzed
STRONTIUM-90	*PCI/L*	8	0.586 U	-0.149 U	0.356 U
TECHNETIUM-99	*PCI/L*	900	13.8 U	0.568 U	9.32 U
THORIUM-228	*PCI/L*	15	0.055 U	0.022 U	0 U
THORIUM-230	*PCI/L*	15	0.036 U	-0.033 U	0.042 U
THORIUM-232	*PCI/L*	15	0 U	-0.055 U	-0.021 U
TRITIUM (HYDROGEN-3)	*PCI/L*	20000	-23.7 U	146 U	34.3 U
TOTAL URANIUM	*UG/L*	30	1.14	1.72	1.47
RADIONUCLIDES (FILTERED)					
CESIUM-137	*PCI/L*	200	-1.0651 U	Not Anaylzed	-0.49901 U
PLUTONIUM-238	*PCI/L*	15	-0.065 U	Not Anaylzed	0.029 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD2	WDD3	WDD3
Field Sample Identifier :			WDD2	WDD3	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/03/12	04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**			
RADIONUCLIDES (FILTERED)					
PLUTONIUM-239/240	*PCI/L*	15	-0.011 U	Not Anaylzed	-0.013 U
RADIUM-226	*PCI/L*	3	0.345 U	Not Anaylzed	0.198 U
RADIUM-228	*PCI/L*	5	-0.225 U	Not Anaylzed	0.589 U
TOTAL RADIUM	*PCI/L*	5	Not Detected	Not Analyzed	Not Detected
STRONTIUM-90	*PCI/L*	8	0.437 U	Not Anaylzed	-0.043 U
TECHNETIUM-99	*PCI/L*	900	3.62 U	Not Anaylzed	-8.01 U
THORIUM-228	*PCI/L*	15	0.042 U	Not Anaylzed	-0.049 U
THORIUM-230	*PCI/L*	15	-0.084 U	Not Anaylzed	0.019 U
THORIUM-232	*PCI/L*	15	-0.007 U	Not Anaylzed	0.01 U
TRITIUM (HYDROGEN-3)	*PCI/L*	20000	68.5 U	Not Anaylzed	0 U
TOTAL URANIUM	*UG/L*	30	0.983	Not Anaylzed	0.916

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	100	130	750	3,800	160	59
ANTIMONY	UG/L	3	15	8.1	6.6	4.4	2.3 J
ARSENIC	UG/L	150	5.5	6.5	5.2	2.7	3.9
BARIUM	UG/L	1000	96	240	95	91	75
BERYLLIUM	UG/L	1100	0.25 U	0.25 U	0.25 U	0.25 U	1.4
BORON	UG/L	10000	590	590	1,300	630	470 J
CADMIUM	UG/L	5	0.34 J	0.57 J	0.4 J	0.32 J	1.4
CALCIUM	UG/L	-	180,000	150,000	160,000	100,000	140,000
CHROMIUM, TOTAL	UG/L	50	3 J	2.6 J	13	2.1 J	6.3 J
COBALT	UG/L	5	0.94 J	1.6 J	2.5 J	0.58 J	1.8 J
COPPER	UG/L	200	10	13	20	4.2 J	6
IRON	UG/L	300	540	1,900	4,900	450	320
LEAD	UG/L	25	7.6	17	16	1.1	1.7
LITHIUM	UG/L	-	49	39 J	37	39 J	18
MAGNESIUM	UG/L	35000	64,000	56,000	43,000	34,000	43,000
MANGANESE	UG/L	300	320	600	850	390	74
MERCURY	UG/L	0.7	0.027 U	0.063 J	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	12 J	10	14	7.3 J	7.9 J
POTASSIUM	UG/L	-	20,000	12,000	15,000	8,800	7,900

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	12	5.3	9.1	6.5	3.4 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.3 J
SODIUM	UG/L	20000	210,000	140,000	170,000	75,000	97,000
THALLIUM	UG/L	8	0.16 U	0.16 U	0.16 U	0.16 U	0.73 J
VANADIUM	UG/L	14	2.1 J	4.4	6.9	1.2 J	2.5
ZINC	UG/L	2000	42 J	68	99	36 J	20 J
METALS (FILTERED)							
ALUMINUM	UG/L	100	12 J	2.9 J	Not Anaylzed	Not Anaylzed	Not Anaylzed
ANTIMONY	UG/L	3	12	6.7	Not Anaylzed	Not Anaylzed	Not Anaylzed
ARSENIC	UG/L	150	5.5	5.2	Not Anaylzed	Not Anaylzed	Not Anaylzed
BARIUM	UG/L	1000	92	220	Not Anaylzed	Not Anaylzed	Not Anaylzed
BERYLLIUM	UG/L	1100	0.25 U	0.25 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
BORON	UG/L	10000	520	530	Not Anaylzed	Not Anaylzed	Not Anaylzed
CADMIUM	UG/L	5	0.27 U	0.27 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
CALCIUM	UG/L	-	140,000	140,000	Not Anaylzed	Not Anaylzed	Not Anaylzed
CHROMIUM, TOTAL	UG/L	50	2.4 J	3.5 J	Not Anaylzed	Not Anaylzed	Not Anaylzed
COBALT	UG/L	5	2.1	1.2 J	Not Anaylzed	Not Anaylzed	Not Anaylzed
COPPER	UG/L	200	6	1.7 J	Not Anaylzed	Not Anaylzed	Not Anaylzed
IRON	UG/L	300	48 U	48 U	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
METALS (FILTERED)							
LEAD	UG/L	25	0.88 J	0.4 J	Not Anaylzed	Not Anaylzed	Not Anaylzed
LITHIUM	UG/L	-	37 J	40 J	Not Anaylzed	Not Anaylzed	Not Anaylzed
MAGNESIUM	UG/L	35000	40,000	49,000	Not Anaylzed	Not Anaylzed	Not Anaylzed
MANGANESE	UG/L	300	260	530	Not Anaylzed	Not Anaylzed	Not Anaylzed
MERCURY	UG/L	7.00E-04	0.052 U	0.052 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
NICKEL	UG/L	100	12	10 J	Not Anaylzed	Not Anaylzed	Not Anaylzed
POTASSIUM	UG/L	-	18,000	13,000	Not Anaylzed	Not Anaylzed	Not Anaylzed
SELENIUM	UG/L	4.6	11	8.3	Not Anaylzed	Not Anaylzed	Not Anaylzed
SILVER	UG/L	50	0.18 U	0.18 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
SODIUM	UG/L	20000	190,000	110,000	Not Anaylzed	Not Anaylzed	Not Anaylzed
THALLIUM	UG/L	8	0.16 U	0.16 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
VANADIUM	UG/L	14	0.64 J	2.6 J	Not Anaylzed	Not Anaylzed	Not Anaylzed
ZINC	UG/L	2000	25 J	18 J	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	100	150	470	110	280	55
ANTIMONY	UG/L	3	2.2 J	0.82 J	1.4 J	3.2	1.4 J
ARSENIC	UG/L	150	2.7	0.99 J	1.6	2.7	7.8
BARIUM	UG/L	1000	64	51	62	81	70
BERYLLIUM	UG/L	1100	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	10000	640	74 J	130 J	870	700
CADMIUM	UG/L	5	0.28 J	0.27 U	0.27 U	0.27 U	0.27 U
CALCIUM	UG/L	-	140,000	99,000	130,000	140,000	150,000
CHROMIUM, TOTAL	UG/L	50	1.8 J	130	400	5.8 J	2.1 J
COBALT	UG/L	5	0.59 J	0.42 J	0.42 J	0.55 J	0.7 J
COPPER	UG/L	200	3 J	3.2 J	3.5 J	5.7	1.9 J
IRON	UG/L	300	1,300	620	170 J	620	17,000
LEAD	UG/L	25	0.57 J	0.54 J	0.3 J	1	0.26 J
LITHIUM	UG/L	-	32 J	13	16 J	21	32 J
MAGNESIUM	UG/L	35000	40,000	36,000	32,000	36,000	41,000
MANGANESE	UG/L	300	890	46	46	110	1,600
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	6.5 J	3.3 J	2.5 J	6.9 J	6.3 J
POTASSIUM	UG/L	-	6,200	1,800	4,100	8,800	5,800

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	7	1.5 J	2.3 J	6.2	7.6
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.29 J	0.18 U
SODIUM	UG/L	20000	80,000	14,000	18,000	82,000	80,000
THALLIUM	UG/L	8	0.38 J	0.17 J	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.56 J	0.49 U	0.49 U	1.2 J	1.5 J
ZINC	UG/L	2000	24 J	12 J	22 J	18 J	20 J
METALS (FILTERED)							
ALUMINUM	UG/L	100	Not Anaylzed	Not Anaylzed	2.7 J	Not Anaylzed	Not Anaylzed
ANTIMONY	UG/L	3	Not Anaylzed	Not Anaylzed	0.61 J	Not Anaylzed	Not Anaylzed
ARSENIC	UG/L	150	Not Anaylzed	Not Anaylzed	0.77 J	Not Anaylzed	Not Anaylzed
BARIUM	UG/L	1000	Not Anaylzed	Not Anaylzed	54	Not Anaylzed	Not Anaylzed
BERYLLIUM	UG/L	1100	Not Anaylzed	Not Anaylzed	0.25 U	Not Anaylzed	Not Anaylzed
BORON	UG/L	10000	Not Anaylzed	Not Anaylzed	83 J	Not Anaylzed	Not Anaylzed
CADMIUM	UG/L	5	Not Anaylzed	Not Anaylzed	0.27 U	Not Anaylzed	Not Anaylzed
CALCIUM	UG/L	-	Not Anaylzed	Not Anaylzed	120,000	Not Anaylzed	Not Anaylzed
CHROMIUM, TOTAL	UG/L	50	Not Anaylzed	Not Anaylzed	390	Not Anaylzed	Not Anaylzed
COBALT	UG/L	5	Not Anaylzed	Not Anaylzed	0.34 J	Not Anaylzed	Not Anaylzed
COPPER	UG/L	200	Not Anaylzed	Not Anaylzed	3.1 J	Not Anaylzed	Not Anaylzed
IRON	UG/L	300	Not Anaylzed	Not Anaylzed	48 U	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
METALS (FILTERED)							
LEAD	UG/L	25	Not Anaylzed	Not Anaylzed	0.24 U	Not Anaylzed	Not Anaylzed
LITHIUM	UG/L	-	Not Anaylzed	Not Anaylzed	15 J	Not Anaylzed	Not Anaylzed
MAGNESIUM	UG/L	35000	Not Anaylzed	Not Anaylzed	28,000	Not Anaylzed	Not Anaylzed
MANGANESE	UG/L	300	Not Anaylzed	Not Anaylzed	8.2	Not Anaylzed	Not Anaylzed
MERCURY	UG/L	7.00E-04	Not Anaylzed	Not Anaylzed	0.052 U	Not Anaylzed	Not Anaylzed
NICKEL	UG/L	100	Not Anaylzed	Not Anaylzed	2.8 J	Not Anaylzed	Not Anaylzed
POTASSIUM	UG/L	-	Not Anaylzed	Not Anaylzed	3,700	Not Anaylzed	Not Anaylzed
SELENIUM	UG/L	4.6	Not Anaylzed	Not Anaylzed	1.8 J	Not Anaylzed	Not Anaylzed
SILVER	UG/L	50	Not Anaylzed	Not Anaylzed	0.18 U	Not Anaylzed	Not Anaylzed
SODIUM	UG/L	20000	Not Anaylzed	Not Anaylzed	12,000	Not Anaylzed	Not Anaylzed
THALLIUM	UG/L	8	Not Anaylzed	Not Anaylzed	0.16 U	Not Anaylzed	Not Anaylzed
VANADIUM	UG/L	14	Not Anaylzed	Not Anaylzed	0.49 U	Not Anaylzed	Not Anaylzed
ZINC	UG/L	2000	Not Anaylzed	Not Anaylzed	9.2 J	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	04/16/12	08/07/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	100	58 J	33 J	200	190	46 J
ANTIMONY	UG/L	3	2.2 J	0.98 J	1.2 J	3.7	3.1
ARSENIC	UG/L	150	2.9	2.5	1.9	2.1	2.9
BARIUM	UG/L	1000	81	55	48	89	65
BERYLLIUM	UG/L	1100	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	10000	190 J	190 J	510	1,100	1,800
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.72 J
CALCIUM	UG/L	-	140,000	120,000	110,000	150,000	370,000
CHROMIUM, TOTAL	UG/L	50	2.4 J	0.5 J	1.6 J	1.9 J	2.2 J
COBALT	UG/L	5	0.84 J	0.85 J	0.85 J	0.45 J	1.8 J
COPPER	UG/L	200	10	2.1 J	4.3 J	6.3	12
IRON	UG/L	300	720	510	450	550	280
LEAD	UG/L	25	1.7	0.46 J	0.83 J	1.1	1.2
LITHIUM	UG/L	-	30	22 J	18	27	38 J
MAGNESIUM	UG/L	35000	41,000	34,000	67,000	39,000	81,000
MANGANESE	UG/L	300	540	330	240	200	1,000
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	7.2 J	4.4 J	8.4 J	6.9 J	16
POTASSIUM	UG/L	-	12,000	8,100	8,000	10,000	13,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	04/16/12	08/07/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	8.4	6.6	1.5 U	5.9	6.5
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	2
SODIUM	UG/L	20000	210,000	110,000	70,000	130,000	200,000
THALLIUM	UG/L	8	0.16 U	0.16 U	0.16 U	0.16 U	0.29 J
VANADIUM	UG/L	14	0.98 U	0.49 U	0.86 J	0.97 J	2.6 J
ZINC	UG/L	2000	34 J	25 J	87	22 J	72
METALS (FILTERED)							
ALUMINUM	UG/L	100	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	8.3 J
ANTIMONY	UG/L	3	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	2.6
ARSENIC	UG/L	150	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	3.6
BARIUM	UG/L	1000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	55
BERYLLIUM	UG/L	1100	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.25 U
BORON	UG/L	10000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	1,600
CADMIUM	UG/L	5	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.34 J
CALCIUM	UG/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	290,000
CHROMIUM, TOTAL	UG/L	50	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	3.8 J
COBALT	UG/L	5	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	2.7
COPPER	UG/L	200	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	7.9
IRON	UG/L	300	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	48 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	04/16/12	08/07/12
Parameter	Units	Criteria[1]					
METALS (FILTERED)							
LEAD	UG/L	25	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.92 J
LITHIUM	UG/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	38 J
MAGNESIUM	UG/L	35000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	61,000
MANGANESE	UG/L	300	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	800
MERCURY	UG/L	7.00E-04	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.052 U
NICKEL	UG/L	100	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	13
POTASSIUM	UG/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	11,000
SELENIUM	UG/L	4.6	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	10
SILVER	UG/L	50	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.24 J
SODIUM	UG/L	20000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	150,000
THALLIUM	UG/L	8	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	0.19 J
VANADIUM	UG/L	14	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	2.2 J
ZINC	UG/L	2000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	43 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/03/12	04/12/12	10/03/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	100	110	150	590	140	680
ANTIMONY	UG/L	3	2.6	0.64 J	1.4 J	0.87 J	1.8 J
ARSENIC	UG/L	150	3.5	3.2	5.4	2.5	5.7
BARIUM	UG/L	1000	65	41	40	56	47
BERYLLIUM	UG/L	1100	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	10000	580	380 J	380 J	390 J	370 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.42 J	0.27 U
CALCIUM	UG/L	-	140,000	160,000	140,000	140,000	140,000
CHROMIUM, TOTAL	UG/L	50	11	2 J	1.2 J	1.1 J	1.2 J
COBALT	UG/L	5	0.74 J	1.6 J	2.1 J	1.6 J	2 J
COPPER	UG/L	200	3 J	16	3.6 J	15	3.9 J
IRON	UG/L	300	2,300	270	960	290	1,100
LEAD	UG/L	25	0.64 J	0.96 J	0.98 J	0.91 J	1.5
LITHIUM	UG/L	-	35 J	11	25 J	9.5	27 J
MAGNESIUM	UG/L	35000	39,000	55,000	46,000	46,000	47,000
MANGANESE	UG/L	300	860	54	220	55	160
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	5.1 J	8.4 J	7.4 J	8.4 J	7.7 J
POTASSIUM	UG/L	-	7,700	120,000	72,000	110,000	67,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/03/12	04/12/12	10/03/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	7.1	1.5 U	3.1 J	1.7 J	4.2 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	97,000	57,000	52,000	42,000	53,000
THALLIUM	UG/L	8	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.85 J	1.9 J	1.9 J	1.6 J	2.2 J
ZINC	UG/L	2000	27 J	160	64	170	61
METALS (FILTERED)							
ALUMINUM	UG/L	100	Not Anaylzed	Not Anaylzed	9.2 J	Not Anaylzed	9.7 J
ANTIMONY	UG/L	3	Not Anaylzed	Not Anaylzed	1.1 J	Not Anaylzed	1.2 J
ARSENIC	UG/L	150	Not Anaylzed	Not Anaylzed	5.2	Not Anaylzed	5.6
BARIUM	UG/L	1000	Not Anaylzed	Not Anaylzed	34	Not Anaylzed	39
BERYLLIUM	UG/L	1100	Not Anaylzed	Not Anaylzed	0.25 U	Not Anaylzed	0.25 U
BORON	UG/L	10000	Not Anaylzed	Not Anaylzed	350 J	Not Anaylzed	330 J
CADMIUM	UG/L	5	Not Anaylzed	Not Anaylzed	0.27 U	Not Anaylzed	0.27 U
CALCIUM	UG/L	-	Not Anaylzed	Not Anaylzed	140,000	Not Anaylzed	140,000
CHROMIUM, TOTAL	UG/L	50	Not Anaylzed	Not Anaylzed	1.5 J	Not Anaylzed	1.9 J
COBALT	UG/L	5	Not Anaylzed	Not Anaylzed	3.2	Not Anaylzed	2.2
COPPER	UG/L	200	Not Anaylzed	Not Anaylzed	2.4 J	Not Anaylzed	2.8 J
IRON	UG/L	300	Not Anaylzed	Not Anaylzed	48 U	Not Anaylzed	48 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/03/12	04/12/12	10/03/12
Parameter	Units	Criteria[1]					
METALS (FILTERED)							
LEAD	UG/L	25	Not Anaylzed	Not Anaylzed	0.36 J	Not Anaylzed	0.32 J
LITHIUM	UG/L	-	Not Anaylzed	Not Anaylzed	24 J	Not Anaylzed	26 J
MAGNESIUM	UG/L	35000	Not Anaylzed	Not Anaylzed	41,000	Not Anaylzed	43,000
MANGANESE	UG/L	300	Not Anaylzed	Not Anaylzed	210	Not Anaylzed	130
MERCURY	UG/L	7.00E-04	Not Anaylzed	Not Anaylzed	0.052 U	Not Anaylzed	0.052 U
NICKEL	UG/L	100	Not Anaylzed	Not Anaylzed	9.3 J	Not Anaylzed	8.8 J
POTASSIUM	UG/L	-	Not Anaylzed	Not Anaylzed	70,000	Not Anaylzed	64,000
SELENIUM	UG/L	4.6	Not Anaylzed	Not Anaylzed	2.9 J	Not Anaylzed	3.5 J
SILVER	UG/L	50	Not Anaylzed	Not Anaylzed	0.18 U	Not Anaylzed	0.18 U
SODIUM	UG/L	20000	Not Anaylzed	Not Anaylzed	42,000	Not Anaylzed	45,000
THALLIUM	UG/L	8	Not Anaylzed	Not Anaylzed	0.16 U	Not Anaylzed	0.16 U
VANADIUM	UG/L	14	Not Anaylzed	Not Anaylzed	1.6 J	Not Anaylzed	1.8 J
ZINC	UG/L	2000	Not Anaylzed	Not Anaylzed	51	Not Anaylzed	40 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**		
METALS				
ALUMINUM	*UG/L*	100	110	630
ANTIMONY	*UG/L*	3	0.73 J	1.7 J
ARSENIC	*UG/L*	150	2.5	5.3
BARIUM	*UG/L*	1000	61	42
BERYLLIUM	*UG/L*	1100	1.3	0.25 U
BORON	*UG/L*	10000	400 J	360 J
CADMIUM	*UG/L*	5	1.6	0.29 J
CALCIUM	*UG/L*	-	120,000	130,000
CHROMIUM, TOTAL	*UG/L*	50	3.2 J	1.4 J
COBALT	*UG/L*	5	2.9 J	1.8 J
COPPER	*UG/L*	200	16	4 J
IRON	*UG/L*	300	280	1,100
LEAD	*UG/L*	25	2	1.1
LITHIUM	*UG/L*	-	8.9	25 J
MAGNESIUM	*UG/L*	35000	40,000	46,000
MANGANESE	*UG/L*	300	38	140
MERCURY	*UG/L*	0.7	0.027 U	0.027 U
NICKEL	*UG/L*	100	9.6 J	7.1 J
POTASSIUM	*UG/L*	-	100,000	66,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/12/12	10/02/12
Parameter	Units	Criteria[1]		
METALS				
SELENIUM	UG/L	10	2.6 J	4.4 J
SILVER	UG/L	50	0.18 U	0.18 U
SODIUM	UG/L	20000	35,000	54,000
THALLIUM	UG/L	8	0.64 J	0.16 U
VANADIUM	UG/L	14	2.8	2.2 J
ZINC	UG/L	2000	160	62
METALS (FILTERED)				
ALUMINUM	UG/L	100	Not Anaylzed	21 J
ANTIMONY	UG/L	3	Not Anaylzed	1.3 J
ARSENIC	UG/L	150	Not Anaylzed	5
BARIUM	UG/L	1000	Not Anaylzed	34
BERYLLIUM	UG/L	1100	Not Anaylzed	0.25 U
BORON	UG/L	10000	Not Anaylzed	310 J
CADMIUM	UG/L	5	Not Anaylzed	0.27 U
CALCIUM	UG/L	-	Not Anaylzed	130,000
CHROMIUM, TOTAL	UG/L	50	Not Anaylzed	12
COBALT	UG/L	5	Not Anaylzed	3.8
COPPER	UG/L	200	Not Anaylzed	3.2 J
IRON	UG/L	300	Not Anaylzed	48 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**		
METALS (FILTERED)				
LEAD	*UG/L*	25	Not Anaylzed	0.33 J
LITHIUM	*UG/L*	-	Not Anaylzed	23 J
MAGNESIUM	*UG/L*	35000	Not Anaylzed	40,000
MANGANESE	*UG/L*	300	Not Anaylzed	67
MERCURY	*UG/L*	7.00E-04	Not Anaylzed	0.052 U
NICKEL	*UG/L*	100	Not Anaylzed	7.9 J
POTASSIUM	*UG/L*	-	Not Anaylzed	61,000
SELENIUM	*UG/L*	4.6	Not Anaylzed	3.2 J
SILVER	*UG/L*	50	Not Anaylzed	0.18 U
SODIUM	*UG/L*	20000	Not Anaylzed	40,000
THALLIUM	*UG/L*	8	Not Anaylzed	0.16 U
VANADIUM	*UG/L*	14	Not Anaylzed	2.1 J
ZINC	*UG/L*	2000	Not Anaylzed	43 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,1,2-TETRACHLOROETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	UG/L	1	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-DICHLOROETHANE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-DICHLOROETHENE	UG/L	5	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	UG/L	5	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	6.00E-04	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,2-DICHLOROBENZENE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DICHLOROETHANE	UG/L	0.6	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-DICHLOROPROPANE	UG/L	1	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,3-DICHLOROBENZENE	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,4-DICHLOROBENZENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-HEXANONE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ACETONE	UG/L	50	5.6	0.44 U	5.5	2.4 J	0.44 U
BENZENE	UG/L	10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMODICHLOROMETHANE	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BROMOFORM	UG/L	50	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
{¦wC!/9 ² !¢9w Ab!LYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
CARBON DISULFIDE	UG/L	60	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
CHLOROFORM	UG/L	7	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CIS-1,2-DICHLOROETHYLENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CYCLOHEXANE	UG/L	50	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ETHYLBENZENE	UG/L	17	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	UG/L	2.6	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
METHYL ACETATE	UG/L	50	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	0.28 U	1.2 J	0.28 U	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	50	0.76 J	0.4 U	0.4 U	0.6 J	0.4 U
METHYLCYCLOHEXANE	UG/L	50	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
METHYLENE CHLORIDE	UG/L	200	0.2 U	R	0.2 U	R	0.2 U
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
TERT-BUTYL METHYL ETHER	UG/L	10	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	UG/L	1	0.26 U	0.26 U	0.26 U	0.26 U	0.42 J
TOLUENE	UG/L	6000	0.2 U	0.47 J	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHANE	UG/L	5	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	UG/L	40	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
TRICHLOROFLUOROMETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
VINYL CHLORIDE	UG/L	2	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
XYLENES, TOTAL	UG/L	-	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,1,2-TETRACHLOROETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	UG/L	1	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-DICHLOROETHANE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-DICHLOROETHENE	UG/L	5	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	UG/L	5	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	6.00E-04	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,2-DICHLOROBENZENE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DICHLOROETHANE	UG/L	0.6	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-DICHLOROPROPANE	UG/L	1	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,3-DICHLOROBENZENE	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,4-DICHLOROBENZENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-HEXANONE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ACETONE	UG/L	50	2.2 J	0.44 U	2.5 J	0.44 U	0.44 U
BENZENE	UG/L	10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMODICHLOROMETHANE	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BROMOFORM	UG/L	50	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
CARBON DISULFIDE	UG/L	60	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
CHLOROFORM	UG/L	7	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CIS-1,2-DICHLOROETHYLENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.41 J	0.17 U
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CYCLOHEXANE	UG/L	50	1 U	Not Anaylzed	1 U	Not Anaylzed	1 U
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ETHYLBENZENE	UG/L	17	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	UG/L	2.6	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
METHYL ACETATE	UG/L	50	1 U	Not Anaylzed	1 U	Not Anaylzed	1 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	50	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
METHYLCYCLOHEXANE	UG/L	50	1 U	Not Anaylzed	1 U	Not Anaylzed	1 U
METHYLENE CHLORIDE	UG/L	200	0.2 U	0.2 U	R	0.2 U	0.2 U
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
TERT-BUTYL METHYL ETHER	UG/L	10	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	UG/L	1	0.26 U	0.26 U	0.26 U	0.35 J	0.26 U
TOLUENE	UG/L	6000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHANE	UG/L	5	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	UG/L	40	0.27 U	0.27 U	0.27 U	0.27 J	0.27 U
TRICHLOROFLUOROMETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
VINYL CHLORIDE	UG/L	2	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
XYLENES, TOTAL	UG/L	-	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,1,2-TETRACHLOROETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	UG/L	1	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-DICHLOROETHANE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-DICHLOROETHENE	UG/L	5	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	UG/L	5	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	6.00E-04	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,2-DICHLOROBENZENE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DICHLOROETHANE	UG/L	0.6	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-DICHLOROPROPANE	UG/L	1	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,3-DICHLOROBENZENE	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,4-DICHLOROBENZENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-HEXANONE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ACETONE	UG/L	50	22	34	0.44 U	0.44 U	2.1 J
BENZENE	UG/L	10	0.64 J	0.38 J	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMODICHLOROMETHANE	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BROMOFORM	UG/L	50	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
CARBON DISULFIDE	UG/L	60	0.15 U	0.15 U	0.67 J	0.15 U	0.15 U
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
CHLOROFORM	UG/L	7	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CIS-1,2-DICHLOROETHYLENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CYCLOHEXANE	UG/L	50	Not Anaylzed	1 U	Not Anaylzed	Not Anaylzed	1 U
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ETHYLBENZENE	UG/L	17	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	UG/L	2.6	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
METHYL ACETATE	UG/L	50	Not Anaylzed	1 U	Not Anaylzed	Not Anaylzed	1 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	0.28 U	1.5 J	0.28 U	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	50	3.2 J	2.6 J	0.4 U	0.4 U	0.4 U
METHYLCYCLOHEXANE	UG/L	50	Not Anaylzed	1 U	Not Anaylzed	Not Anaylzed	1 U
METHYLENE CHLORIDE	UG/L	200	0.2 U	0.94 J	0.2 U	0.2 U	R
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
TERT-BUTYL METHYL ETHER	UG/L	10	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	UG/L	1	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
TOLUENE	UG/L	6000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHANE	UG/L	5	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	UG/L	40	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
TRICHLOROFLUOROMETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
VINYL CHLORIDE	UG/L	2	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
XYLENES, TOTAL	UG/L	-	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Field Sample Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/12/12	10/03/12	04/12/12	10/03/12	04/12/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,1,2-TETRACHLOROETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	UG/L	1	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-DICHLOROETHANE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-DICHLOROETHENE	UG/L	5	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	UG/L	5	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	6.00E-04	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,2-DICHLOROBENZENE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DICHLOROETHANE	UG/L	0.6	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-DICHLOROPROPANE	UG/L	1	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,3-DICHLOROBENZENE	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,4-DICHLOROBENZENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-HEXANONE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ACETONE	UG/L	50	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
BENZENE	UG/L	10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMODICHLOROMETHANE	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BROMOFORM	UG/L	50	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Field Sample Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/12/12	10/03/12	04/12/12	10/03/12	04/12/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
CARBON DISULFIDE	UG/L	60	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
CHLOROFORM	UG/L	7	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CIS-1,2-DICHLOROETHYLENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CYCLOHEXANE	UG/L	50	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ETHYLBENZENE	UG/L	17	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	UG/L	2.6	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
METHYL ACETATE	UG/L	50	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	50	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
METHYLCYCLOHEXANE	UG/L	50	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
METHYLENE CHLORIDE	UG/L	200	0.2 U	R	0.2 U	R	0.2 U
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Field Sample Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/12/12	10/03/12	04/12/12	10/03/12	04/12/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
TERT-BUTYL METHYL ETHER	UG/L	10	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	UG/L	1	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
TOLUENE	UG/L	6000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHANE	UG/L	5	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	UG/L	40	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
TRICHLOROFLUOROMETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
VINYL CHLORIDE	UG/L	2	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
XYLENES, TOTAL	UG/L	-	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3
Field Sample Identifier :			WDD3
Sample Type :			Surface Water
Sample Depth Interval (ft) :			-
Date of Sample :			10/02/12
Parameter	**Units**	**Criteria[1]**	
VOLATILE ORGANIC ANALYSES			
1,1,1,2-TETRACHLOROETHANE	*UG/L*	5	0.26 U
1,1,2-TRICHLOROETHANE	*UG/L*	1	0.27 U
1,1-DICHLOROETHANE	*UG/L*	5	0.25 U
1,1-DICHLOROETHENE	*UG/L*	5	0.19 U
1,2,3-TRICHLOROBENZENE	*UG/L*	5	0.38 U
1,2,4-TRICHLOROBENZENE	*UG/L*	5	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	*UG/L*	0.04	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	*UG/L*	6.00E-04	0.18 U
1,2-DICHLOROBENZENE	*UG/L*	5	0.25 U
1,2-DICHLOROETHANE	*UG/L*	0.6	0.19 U
1,2-DICHLOROPROPANE	*UG/L*	1	0.35 U
1,3-DICHLOROBENZENE	*UG/L*	5	0.21 U
1,4-DICHLOROBENZENE	*UG/L*	5	0.18 U
2-HEXANONE	*UG/L*	50	0.21 U
ACETONE	*UG/L*	50	2.5 J
BENZENE	*UG/L*	10	0.2 U
BROMOCHLOROMETHANE	*UG/L*	5	0.2 U
BROMODICHLOROMETHANE	*UG/L*	50	0.18 U
BROMOFORM	*UG/L*	50	0.33 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3
Field Sample Identifier :			WDD3
Sample Type :			Surface Water
Sample Depth Interval (ft) :			-
Date of Sample :			10/02/12
Parameter	**Units**	**Criteria[1]**	
VOLATILE ORGANIC ANALYSES			
BROMOMETHANE	*UG/L*	5	1.2 U
CARBON DISULFIDE	*UG/L*	60	0.15 U
CARBON TETRACHLORIDE	*UG/L*	5	0.36 U
CHLOROBENZENE	*UG/L*	5	0.22 U
CHLOROETHANE	*UG/L*	5	0.42 U
CHLOROFORM	*UG/L*	7	0.19 U
CHLOROMETHANE	*UG/L*	5	0.22 U
CIS-1,2-DICHLOROETHYLENE	*UG/L*	5	0.17 U
CIS-1,3-DICHLOROPROPENE	*UG/L*	0.4	0.17 U
CYCLOHEXANE	*UG/L*	50	1 U
DIBROMOCHLOROMETHANE	*UG/L*	50	0.21 U
ETHYLBENZENE	*UG/L*	17	0.2 U
ISOPROPYLBENZENE (CUMENE)	*UG/L*	2.6	0.21 U
METHYL ACETATE	*UG/L*	50	1 U
METHYL ETHYL KETONE (2-BUTANONE)	*UG/L*	50	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	*UG/L*	50	0.4 U
METHYLCYCLOHEXANE	*UG/L*	50	1 U
METHYLENE CHLORIDE	*UG/L*	200	R
STYRENE	*UG/L*	5	0.2 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3
Field Sample Identifier :			WDD3
Sample Type :			Surface Water
Sample Depth Interval (ft) :			-
Date of Sample :			10/02/12
Parameter	**Units**	**Criteria[1]**	
VOLATILE ORGANIC ANALYSES			
TERT-BUTYL METHYL ETHER	*UG/L*	10	0.17 U
TETRACHLOROETHYLENE(PCE)	*UG/L*	1	0.26 U
TOLUENE	*UG/L*	6000	0.2 U
TRANS-1,2-DICHLOROETHENE	*UG/L*	5	0.18 U
TRANS-1,3-DICHLOROPROPENE	*UG/L*	0.4	0.2 U
TRICHLOROETHANE	*UG/L*	5	0.16 U
TRICHLOROETHYLENE (TCE)	*UG/L*	40	0.27 U
TRICHLOROFLUOROMETHANE	*UG/L*	5	0.26 U
VINYL CHLORIDE	*UG/L*	2	0.24 U
XYLENES, TOTAL	*UG/L*	-	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/L	4.7	0.25 U	0.18 U	0.25 U	0.17 U	0.25 U
ACENAPHTHENE	UG/L	5.3	0.19 U	0.25 U	0.19 U	0.25 U	0.19 U
ACENAPHTHYLENE	UG/L	50	0.18 U	0.27 U	0.18 U	0.26 U	0.18 U
ANTHRACENE	UG/L	3.8	0.18 U	0.38 U	0.18 U	0.38 U	0.18 U
BENZO(A)ANTHRACENE	UG/L	0.03	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BENZO(A)PYRENE	UG/L	0.0012	0.16 U	0.23 U	0.16 U	0.23 U	0.16 U
BENZO(B)FLUORANTHENE	UG/L	0.002	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
BENZO(G,H,I)PERYLENE	UG/L	50	0.24 U	0.38 U	0.24 U	0.38 U	0.24 U
BENZO(K)FLUORANTHENE	UG/L	0.002	0.19 U	0.2 U	0.19 U	0.2 U	0.19 U
CHRYSENE	UG/L	0.002	0.19 U	0.28 U	0.19 U	0.27 U	0.19 U
DIBENZ(A,H)ANTHRACENE	UG/L	50	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
FLUORANTHENE	UG/L	50	0.18 U	0.42 U	0.18 U	0.42 U	0.18 U
FLUORENE	UG/L	0.54	0.16 U	0.31 U	0.16 U	0.3 U	0.16 U
INDENO(1,2,3-C,D)PYRENE	UG/L	0.002	0.25 U	0.28 U	0.25 U	0.28 U	0.25 U
NAPHTHALENE	UG/L	13	0.22 U	0.11 U	0.22 U	0.1 U	0.22 U
PHENANTHRENE	UG/L	5	0.14 U	0.32 U	0.14 U	0.32 U	0.14 U
PYRENE	UG/L	4.6	0.21 U	0.34 U	0.21 U	0.34 U	0.21 U
PESTICIDES							
ALDRIN	UG/L	0.001	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	0.002	0.002 U	0.01 U	0.002 U	0.01 U	0.002 U
ALPHA ENDOSULFAN	UG/L	0.009	0.0031 U	0.016 U	0.0031 U	0.016 U	0.0031 U
ALPHA-CHLORDANE	UG/L	50	0.0031 U	0.016 U	0.0031 U	0.016 U	0.0031 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	0.007	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
BETA ENDOSULFAN	UG/L	50	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
CHLORDANE	UG/L	2.00E-05	Not Anaylzed	0.17 U	Not Anaylzed	0.17 U	Not Anaylzed
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/L	8.00E-05	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/L	7.00E-06	0.0026 U	0.013 U	0.0026 U	0.013 U	0.0026 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/L	1.00E-05	0.0031 U	0.016 U	0.0031 U	0.016 U	0.0031 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	0.008	0.0088 J	0.01 U	0.002 U	0.01 U	0.002 U
DIELDRIN	UG/L	0.001	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
ENDOSULFAN SULFATE	UG/L	50	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
ENDRIN	UG/L	0.002	0.0027 U	0.014 U	0.0027 U	0.014 U	0.0027 U
ENDRIN ALDEHYDE	UG/L	5	0.0035 U	0.018 U	0.0035 U	0.018 U	0.0035 U
ENDRIN KETONE	UG/L	5	0.0031 U	0.016 U	0.0031 U	0.016 U	0.0031 U
GAMMA BHC (LINDANE)	UG/L	0.008	0.002 U	0.01 U	0.002 U	0.01 U	0.002 U
GAMMA-CHLORDANE	UG/L	50	0.0031 U	0.016 U	0.0031 U	0.016 U	0.0031 U
HEPTACHLOR	UG/L	2.00E-04	0.0028 U	0.014 U	0.0028 U	0.014 U	0.012
HEPTACHLOR EPOXIDE	UG/L	3.00E-04	0.0097 J	0.016 U	0.0032 U	0.016 U	0.0032 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/L	0.03	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
TOXAPHENE	UG/L	6.00E-06	Not Anaylzed	0.2 U	Not Anaylzed	0.2 U	Not Anaylzed
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/L	1.00E-06	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1016 (AROCHLOR 1016)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1221 (AROCHLOR 1221)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1232 (AROCHLOR 1232)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1242 (AROCHLOR 1242)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1248 (AROCHLOR 1248)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1254 (AROCHLOR 1254)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1260 (AROCHLOR 1260)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1262 (AROCHLOR 1262)	UG/L	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1268 (AROCHLOR 1268)	UG/L	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/L	4.7	0.18 U	0.25 U	0.18 U	0.25 U	0.17 U
ACENAPHTHENE	UG/L	5.3	0.26 U	0.19 U	0.25 U	0.19 U	0.25 U
ACENAPHTHYLENE	UG/L	50	0.28 U	0.18 U	0.27 U	0.18 U	0.26 U
ANTHRACENE	UG/L	3.8	0.39 U	0.18 U	0.38 U	0.18 U	0.38 U
BENZO(A)ANTHRACENE	UG/L	0.03	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
BENZO(A)PYRENE	UG/L	0.0012	0.24 U	0.16 U	0.23 U	0.16 U	0.23 U
BENZO(B)FLUORANTHENE	UG/L	0.002	0.23 U	0.22 U	0.22 U	0.22 U	0.22 U
BENZO(G,H,I)PERYLENE	UG/L	50	0.4 U	0.24 U	0.38 U	0.24 U	0.38 U
BENZO(K)FLUORANTHENE	UG/L	0.002	0.21 U	0.19 U	0.2 U	0.19 U	0.2 U
CHRYSENE	UG/L	0.002	0.29 U	0.19 U	0.28 U	0.19 U	0.27 U
DIBENZ(A,H)ANTHRACENE	UG/L	50	0.27 U	0.26 U	0.26 U	0.26 U	0.26 U
FLUORANTHENE	UG/L	50	0.44 U	0.18 U	0.42 U	0.18 U	0.42 U
FLUORENE	UG/L	0.54	0.32 U	0.16 U	0.31 U	0.16 U	0.3 U
INDENO(1,2,3-C,D)PYRENE	UG/L	0.002	0.29 U	0.25 U	0.28 U	0.25 U	0.28 U
NAPHTHALENE	UG/L	13	0.11 U	0.22 U	0.11 UH	0.22 U	0.1 U
PHENANTHRENE	UG/L	5	0.33 U	0.14 U	0.32 U	0.14 U	0.32 U
PYRENE	UG/L	4.6	0.35 U	0.21 U	0.34 U	0.21 U	0.34 U
PESTICIDES							
ALDRIN	UG/L	0.001	0.015 U	0.003 U	0.015 U	0.003 U	0.015 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	0.002	0.01 U	0.002 U	0.01 U	0.002 U	0.01 U
ALPHA ENDOSULFAN	UG/L	0.009	0.016 U	0.0031 U	0.016 U	0.0031 U	0.016 U
ALPHA-CHLORDANE	UG/L	50	0.016 U	0.0031 U	0.016 U	0.0031 U	0.016 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	0.007	0.015 U	0.003 U	0.015 U	0.003 U	0.015 U
BETA ENDOSULFAN	UG/L	50	0.015 U	0.003 U	0.015 U	0.003 U	0.015 U
CHLORDANE	UG/L	2.00E-05	0.17 U	Not Anaylzed	0.17 U	Not Anaylzed	0.17 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/L	8.00E-05	0.015 U	0.003 U	0.015 U	0.003 U	0.015 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/L	7.00E-06	0.013 U	0.0026 U	0.013 U	0.0026 U	0.013 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/L	1.00E-05	0.016 U	0.0031 U	0.016 U	0.0031 U	0.016 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	0.008	0.01 U	0.002 U	0.01 U	0.002 U	0.01 U
DIELDRIN	UG/L	0.001	0.015 U	0.003 U	0.015 U	0.003 U	0.015 U
ENDOSULFAN SULFATE	UG/L	50	0.015 U	0.003 U	0.015 U	0.003 U	0.015 U
ENDRIN	UG/L	0.002	0.014 U	0.0027 U	0.014 U	0.0027 U	0.014 U
ENDRIN ALDEHYDE	UG/L	5	0.018 U	0.0035 U	0.018 U	0.0035 U	0.018 U
ENDRIN KETONE	UG/L	5	0.016 U	0.0031 U	0.016 U	0.0031 U	0.016 U
GAMMA BHC (LINDANE)	UG/L	0.008	0.01 U	0.002 U	0.01 U	0.002 U	0.01 U
GAMMA-CHLORDANE	UG/L	50	0.016 U	0.0031 U	0.016 U	0.0031 U	0.016 U
HEPTACHLOR	UG/L	2.00E-04	0.014 U	0.0028 U	0.014 U	0.0028 U	0.014 U
HEPTACHLOR EPOXIDE	UG/L	3.00E-04	0.016 U	0.0032 U	0.016 U	0.0032 U	0.016 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/L	0.03	0.015 U	0.003 U	0.015 U	0.003 U	0.015 U
TOXAPHENE	UG/L	6.00E-06	0.2 U	Not Anaylzed	0.2 U	Not Anaylzed	0.2 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/L	1.00E-06	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1016 (AROCHLOR 1016)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1221 (AROCHLOR 1221)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1232 (AROCHLOR 1232)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1242 (AROCHLOR 1242)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1248 (AROCHLOR 1248)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1254 (AROCHLOR 1254)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1260 (AROCHLOR 1260)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1262 (AROCHLOR 1262)	UG/L	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1268 (AROCHLOR 1268)	UG/L	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/L	4.7	0.25 U	0.18 U	0.25 U	0.25 U	0.17 U
ACENAPHTHENE	UG/L	5.3	0.19 U	0.25 U	0.19 U	0.19 U	0.25 U
ACENAPHTHYLENE	UG/L	50	0.18 U	0.27 U	0.18 U	0.18 U	0.26 U
ANTHRACENE	UG/L	3.8	0.18 U	0.38 U	0.18 U	0.18 U	0.38 U
BENZO(A)ANTHRACENE	UG/L	0.03	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BENZO(A)PYRENE	UG/L	0.0012	0.16 U	0.23 U	0.16 U	0.16 U	0.23 U
BENZO(B)FLUORANTHENE	UG/L	0.002	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
BENZO(G,H,I)PERYLENE	UG/L	50	0.24 U	0.38 U	0.24 U	0.24 U	0.38 U
BENZO(K)FLUORANTHENE	UG/L	0.002	0.2 U	0.2 U	0.2 U	0.19 U	0.2 U
CHRYSENE	UG/L	0.002	0.19 U	0.28 U	0.19 U	0.19 U	0.27 U
DIBENZ(A,H)ANTHRACENE	UG/L	50	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
FLUORANTHENE	UG/L	50	0.18 U	0.42 U	0.18 U	0.18 U	0.42 U
FLUORENE	UG/L	0.54	0.17 U	0.31 U	0.17 U	0.16 U	0.3 U
INDENO(1,2,3-C,D)PYRENE	UG/L	0.002	0.25 U	0.28 U	0.25 U	0.25 U	0.28 U
NAPHTHALENE	UG/L	13	0.22 U	0.11 U	0.22 U	0.22 U	0.1 U
PHENANTHRENE	UG/L	5	0.14 U	0.32 U	0.14 U	0.14 U	0.32 U
PYRENE	UG/L	4.6	0.21 U	0.34 U	0.21 U	0.21 U	0.34 U
PESTICIDES							
ALDRIN	UG/L	0.001	0.003 U	0.015 U	0.003 U	0.003 U	0.015 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	0.002	0.002 U	0.01 U	0.002 U	0.002 U	0.01 U
ALPHA ENDOSULFAN	UG/L	0.009	0.0031 U	0.016 U	0.0098 J	0.0031 U	0.016 U
ALPHA-CHLORDANE	UG/L	50	0.0031 U	0.016 U	0.0031 U	0.0031 U	0.016 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	0.007	0.0032 J	0.015 U	0.003 U	0.003 U	0.015 U
BETA ENDOSULFAN	UG/L	50	0.003 U	0.015 U	0.003 U	0.003 U	0.015 U
CHLORDANE	UG/L	2.00E-05	Not Anaylzed	0.17 U	Not Anaylzed	Not Anaylzed	0.17 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/L	8.00E-05	0.003 U	0.015 U	0.003 U	0.003 U	0.015 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/L	7.00E-06	0.0026 U	0.013 U	0.0026 U	0.0026 U	0.013 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/L	1.00E-05	0.0031 U	0.016 U	0.0031 U	0.0031 U	0.016 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	0.008	0.002 U	0.01 U	0.002 U	0.002 U	0.01 U
DIELDRIN	UG/L	0.001	0.033	0.015 U	0.003 U	0.003 U	0.015 U
ENDOSULFAN SULFATE	UG/L	50	0.038	0.015 U	0.003 U	0.003 U	0.015 U
ENDRIN	UG/L	0.002	0.0027 U	0.014 U	0.0027 U	0.0027 U	0.014 U
ENDRIN ALDEHYDE	UG/L	5	0.0035 U	0.018 U	0.0035 U	0.0035 U	0.018 U
ENDRIN KETONE	UG/L	5	0.0031 U	0.016 U	0.0031 U	0.0031 U	0.016 U
GAMMA BHC (LINDANE)	UG/L	0.008	0.002 U	0.01 U	0.002 U	0.002 U	0.01 U
GAMMA-CHLORDANE	UG/L	50	0.0031 U	0.016 U	0.0031 U	0.0031 U	0.016 U
HEPTACHLOR	UG/L	2.00E-04	0.0028 U	0.014 U	0.0028 U	0.0028 U	0.014 U
HEPTACHLOR EPOXIDE	UG/L	3.00E-04	0.0032 U	0.016 U	0.0032 U	0.0032 U	0.016 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD025	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/L	0.03	0.003 U	0.015 U	0.003 U	0.003 U	0.015 U
TOXAPHENE	UG/L	6.00E-06	Not Anaylzed	0.2 U	Not Anaylzed	Not Anaylzed	0.2 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/L	1.00E-06	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1016 (AROCHLOR 1016)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1221 (AROCHLOR 1221)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1232 (AROCHLOR 1232)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1242 (AROCHLOR 1242)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1248 (AROCHLOR 1248)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1254 (AROCHLOR 1254)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1260 (AROCHLOR 1260)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1262 (AROCHLOR 1262)	UG/L	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1268 (AROCHLOR 1268)	UG/L	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Field Sample Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/12/12	10/03/12	04/12/12	10/03/12	04/12/12
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/L	4.7	0.25 U	0.18 U	0.25 U	0.18 U	0.25 U
ACENAPHTHENE	UG/L	5.3	0.19 U	0.26 U	0.19 U	0.25 U	0.19 U
ACENAPHTHYLENE	UG/L	50	0.18 U	0.27 U	0.18 U	0.27 U	0.18 U
ANTHRACENE	UG/L	3.8	0.18 U	0.39 U	0.18 U	0.38 U	0.18 U
BENZO(A)ANTHRACENE	UG/L	0.03	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U
BENZO(A)PYRENE	UG/L	0.0012	0.16 U	0.24 U	0.16 U	0.23 U	0.16 U
BENZO(B)FLUORANTHENE	UG/L	0.002	0.22 U	0.23 U	0.22 U	0.22 U	0.22 U
BENZO(G,H,I)PERYLENE	UG/L	50	0.24 U	0.39 U	0.24 U	0.38 U	0.24 U
BENZO(K)FLUORANTHENE	UG/L	0.002	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHRYSENE	UG/L	0.002	0.19 U	0.28 U	0.19 U	0.28 U	0.19 U
DIBENZ(A,H)ANTHRACENE	UG/L	50	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
FLUORANTHENE	UG/L	50	0.18 U	0.43 U	0.18 U	0.42 U	0.18 U
FLUORENE	UG/L	0.54	0.17 U	0.31 U	0.17 U	0.31 U	0.17 U
INDENO(1,2,3-C,D)PYRENE	UG/L	0.002	0.25 U	0.29 U	0.25 U	0.28 U	0.25 U
NAPHTHALENE	UG/L	13	0.22 U	0.11 U	0.22 U	0.11 U	0.22 U
PHENANTHRENE	UG/L	5	0.14 U	0.33 U	0.14 U	0.32 U	0.14 U
PYRENE	UG/L	4.6	0.21 U	0.35 U	0.21 U	0.34 U	0.21 U
PESTICIDES							
ALDRIN	UG/L	0.001	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Field Sample Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/12/12	10/03/12	04/12/12	10/03/12	04/12/12
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	0.002	0.002 U	0.01 U	0.002 U	0.01 U	0.002 U
ALPHA ENDOSULFAN	UG/L	0.009	0.0031 U	0.016 U	0.0031 U	0.016 U	0.0031 U
ALPHA-CHLORDANE	UG/L	50	0.0031 U	0.016 U	0.0031 U	0.016 U	0.0031 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	0.007	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
BETA ENDOSULFAN	UG/L	50	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
CHLORDANE	UG/L	2.00E-05	Not Anaylzed	0.17 U	Not Anaylzed	0.17 U	Not Anaylzed
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/L	8.00E-05	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/L	7.00E-06	0.0026 U	0.013 U	0.0026 U	0.013 U	0.0026 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/L	1.00E-05	0.0031 U	0.016 U	0.0031 U	0.016 U	0.0031 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	0.008	0.002 U	0.01 U	0.002 U	0.01 U	0.002 U
DIELDRIN	UG/L	0.001	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
ENDOSULFAN SULFATE	UG/L	50	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
ENDRIN	UG/L	0.002	0.0027 U	0.014 U	0.0027 U	0.014 U	0.0027 U
ENDRIN ALDEHYDE	UG/L	5	0.0035 U	0.018 U	0.0035 U	0.018 U	0.0035 U
ENDRIN KETONE	UG/L	5	0.0031 U	0.016 U	0.0031 U	0.016 U	0.0031 U
GAMMA BHC (LINDANE)	UG/L	0.008	0.002 U	0.01 U	0.002 U	0.01 U	0.002 U
GAMMA-CHLORDANE	UG/L	50	0.0031 U	0.016 U	0.0031 U	0.016 U	0.0031 U
HEPTACHLOR	UG/L	2.00E-04	0.0028 U	0.014 U	0.0028 U	0.014 U	0.0028 U
HEPTACHLOR EPOXIDE	UG/L	3.00E-04	0.0032 U	0.016 U	0.0032 U	0.016 U	0.0032 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Field Sample Identifier :			WDD1	WDD1	WDD2	WDD2	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/12/12	10/03/12	04/12/12	10/03/12	04/12/12
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/L	0.03	0.003 U	0.015 U	0.003 U	0.015 U	0.003 U
TOXAPHENE	UG/L	6.00E-06	Not Anaylzed	0.2 U	Not Anaylzed	0.2 U	Not Anaylzed
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/L	1.00E-06	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1016 (AROCHLOR 1016)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1221 (AROCHLOR 1221)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1232 (AROCHLOR 1232)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1242 (AROCHLOR 1242)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1248 (AROCHLOR 1248)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1254 (AROCHLOR 1254)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1260 (AROCHLOR 1260)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1262 (AROCHLOR 1262)	UG/L	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1268 (AROCHLOR 1268)	UG/L	-	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3
Field Sample Identifier :			WDD3
Sample Type :			Surface Water
Sample Depth Interval (ft) :			-
Date of Sample :			10/02/12
Parameter	**Units**	**Criteria[1]**	
POLYCYCLIC AROMATIC HYDROCARBON			
2-METHYLNAPHTHALENE	*UG/L*	4.7	0.17 U
ACENAPHTHENE	*UG/L*	5.3	0.25 U
ACENAPHTHYLENE	*UG/L*	50	0.26 U
ANTHRACENE	*UG/L*	3.8	0.38 U
BENZO(A)ANTHRACENE	*UG/L*	0.03	0.18 U
BENZO(A)PYRENE	*UG/L*	0.0012	0.23 U
BENZO(B)FLUORANTHENE	*UG/L*	0.002	0.22 U
BENZO(G,H,I)PERYLENE	*UG/L*	50	0.38 U
BENZO(K)FLUORANTHENE	*UG/L*	0.002	0.2 U
CHRYSENE	*UG/L*	0.002	0.27 U
DIBENZ(A,H)ANTHRACENE	*UG/L*	50	0.26 U
FLUORANTHENE	*UG/L*	50	0.42 U
FLUORENE	*UG/L*	0.54	0.3 U
INDENO(1,2,3-C,D)PYRENE	*UG/L*	0.002	0.28 U
NAPHTHALENE	*UG/L*	13	0.1 U
PHENANTHRENE	*UG/L*	5	0.32 U
PYRENE	*UG/L*	4.6	0.34 U
PESTICIDES			
ALDRIN	*UG/L*	0.001	0.024 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3
Field Sample Identifier :			WDD3
Sample Type :			Surface Water
Sample Depth Interval (ft) :			-
Date of Sample :			10/02/12
Parameter	**Units**	**Criteria[1]**	
PESTICIDES			
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	*UG/L*	0.002	0.01 U
ALPHA ENDOSULFAN	*UG/L*	0.009	0.016 U
ALPHA-CHLORDANE	*UG/L*	50	0.016 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	*UG/L*	0.007	0.015 U
BETA ENDOSULFAN	*UG/L*	50	0.015 U
CHLORDANE	*UG/L*	2.00E-05	0.17 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	*UG/L*	8.00E-05	0.015 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	*UG/L*	7.00E-06	0.013 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	*UG/L*	1.00E-05	0.016 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	*UG/L*	0.008	0.01 U
DIELDRIN	*UG/L*	0.001	0.015 U
ENDOSULFAN SULFATE	*UG/L*	50	0.015 U
ENDRIN	*UG/L*	0.002	0.014 U
ENDRIN ALDEHYDE	*UG/L*	5	0.018 U
ENDRIN KETONE	*UG/L*	5	0.016 U
GAMMA BHC (LINDANE)	*UG/L*	0.008	0.01 U
GAMMA-CHLORDANE	*UG/L*	50	0.016 U
HEPTACHLOR	*UG/L*	2.00E-04	0.014 U
HEPTACHLOR EPOXIDE	*UG/L*	3.00E-04	0.016 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3
Field Sample Identifier :			WDD3
Sample Type :			Surface Water
Sample Depth Interval (ft) :			-
Date of Sample :			10/02/12
Parameter	**Units**	**Criteria[1]**	
PESTICIDES			
METHOXYCHLOR	*UG/L*	0.03	0.015 U
TOXAPHENE	*UG/L*	6.00E-06	0.2 U
POLYCHLORINATED BIPHENYLS			
PCB, TOTAL	*UG/L*	1.00E-06	0.05 U
PCB-1016 (AROCHLOR 1016)	*UG/L*	-	0.03 U
PCB-1221 (AROCHLOR 1221)	*UG/L*	-	0.03 U
PCB-1232 (AROCHLOR 1232)	*UG/L*	-	0.04 U
PCB-1242 (AROCHLOR 1242)	*UG/L*	-	0.04 U
PCB-1248 (AROCHLOR 1248)	*UG/L*	-	0.03 U
PCB-1254 (AROCHLOR 1254)	*UG/L*	-	0.04 U
PCB-1260 (AROCHLOR 1260)	*UG/L*	-	0.04 U
PCB-1262 (AROCHLOR 1262)	*UG/L*	-	0.05 U
PCB-1268 (AROCHLOR 1268)	*UG/L*	-	0.1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 11
SEDIMENT ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/G	11	0.059	0.040273 U	0.04	0.0081727 U	0.043 U
PLUTONIUM-238	PCI/G	2.5	-0.03 U	-0.029 U	0.016 U	-0.025 U	0.052 U
PLUTONIUM-239/240	PCI/G	2.3	-0.012 U	0.006 U	-0.027 U	0.067 U	-0.001 U
RADIUM-226	PCI/G	5	0.926	0.948	1.08	1.166	1.51
RADIUM-228	PCI/G	5	1.05	1.039	1.08	1.211	1.26
STRONTIUM-90	PCI/G	1.7	-0.046 U	R	0.06 U	0.126 U	-0.0719 U
TECHNETIUM-99	PCI/G	19	1.68 U	0.344 U	R	1.25 U	1 U
THORIUM-228	PCI/G	5	1.02 J	1.19	1.63 J	1.06	1.5 J
THORIUM-230	PCI/G	5	0.68	0.841	1.01	1.04	1.19
THORIUM-232	PCI/G	5	0.816	0.871	1.13	1.2	1.13
TRITIUM (HYDROGEN-3)	PCI/G	110	0.756 J	0.801	0.424 J	0.261 U	0.276 U
URANIUM-234	PCI/G	13	0.709	0.954	2.16	2.8	1.41
URANIUM-235	PCI/G	8	0.17	0.045 U	0.036 U	0.165	0.1
URANIUM-238	PCI/G	14	0.741	0.999	1.91	2.65	1.23

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 11
SEDIMENT ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/G	11	0.044465 U	0.024 U	0.0084743 U	0.037 U	0.031829 U
PLUTONIUM-238	PCI/G	2.5	0.003 U	-0.03 U	R	-0.026 U	0 U
PLUTONIUM-239/240	PCI/G	2.3	R	0.009 U	-0.018 U	0.002 U	0.042 U
RADIUM-226	PCI/G	5	1.44	1.25	1.296	1.67	1.508
RADIUM-228	PCI/G	5	1.401	1.52	1.602	1.56	1.468
STRONTIUM-90	PCI/G	1.7	0.72 J	0.207 U	0.264 U	0.335 J	R
TECHNETIUM-99	PCI/G	19	0.538 U	0.795 U	0.686 U	R	-0.475 U
THORIUM-228	PCI/G	5	1.16	1.57 J	1.88	1.71 J	1.51
THORIUM-230	PCI/G	5	1.03	1.17	1.28	1.15	1.44
THORIUM-232	PCI/G	5	1.21	1.38	1.23	0.853	1.25
TRITIUM (HYDROGEN-3)	PCI/G	110	0.24 U	0.26 U	0.236 U	0.383 J	0.179 U
URANIUM-234	PCI/G	13	1.2	1.19	1.15	1.6	2.2
URANIUM-235	PCI/G	8	0.092	0.046 U	0.081	0.144	0.047 U
URANIUM-238	PCI/G	14	1.08	0.915	1.04	1.48	2.04

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 11
SEDIMENT ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	10/03/12	02/14/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/G	11	0.013 U	0.028647 U	0.096	0.107	0.043
PLUTONIUM-238	PCI/G	2.5	-0.007 U	0.007 U	-0.059 U	-0.009 U	-0.015 U
PLUTONIUM-239/240	PCI/G	2.3	0.004 U	0.005 U	0.018 U	R	-0.026 U
RADIUM-226	PCI/G	5	0.767	0.735	1.01	1.244	1.84
RADIUM-228	PCI/G	5	0.703	0.788	1.11	1.419	1.81
STRONTIUM-90	PCI/G	1.7	0.113 U	R	0.016 U	0.185 U	0.3 J
TECHNETIUM-99	PCI/G	19	0.902 U	0.68 U	R	1.48 U	0.247 U
THORIUM-228	PCI/G	5	1.21 J	0.56	1.31 J	1.31	1.8 J
THORIUM-230	PCI/G	5	0.408	0.123 U	0.244	0.855	0.754 J
THORIUM-232	PCI/G	5	0.418	0.364	0.922	0.94	1.01
TRITIUM (HYDROGEN-3)	PCI/G	110	0.0664 U	0.312 U	0.124 U	0.0198 U	0.553
URANIUM-234	PCI/G	13	0.589	0.744	2.65	2.66	2.32
URANIUM-235	PCI/G	8	0.014 U	0.061	0.215	0.144	0.086 U
URANIUM-238	PCI/G	14	0.727	0.845	2.53	2.37	1.76

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 11
SEDIMENT ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	SWSD025	WDD1	WDD1
Field Sample Identifier :			SWSD025	SWSD025	SWSD025	WDD1	WDD1
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/16/12	08/07/12	10/02/12	04/12/12	10/03/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/G	11	0.012 U	0.028 U	0.019241 U	0.075	0.079
PLUTONIUM-238	PCI/G	2.5	-0.046 U	0.019 U	0.023 U	-0.018 U	-0.005 U
PLUTONIUM-239/240	PCI/G	2.3	-0.008 U	0.021 U	0.034 U	-0.01 U	0.015 U
RADIUM-226	PCI/G	5	1.67	1.71	1.743	1.23	1.191
RADIUM-228	PCI/G	5	1.62	1.72	1.753	1.51	1.404
STRONTIUM-90	PCI/G	1.7	0.112 U	-0.021 U	0.21 U	0.0241 U	0.213 U
TECHNETIUM-99	PCI/G	19	R	0.67 U	0.261 U	R	0.657 U
THORIUM-228	PCI/G	5	1.53 J	1.06	1.6	1.59 J	1.04
THORIUM-230	PCI/G	5	1.05	1.01	1.15	0.371	1.04
THORIUM-232	PCI/G	5	1.07	0.889	0.922	1.54	1.16
TRITIUM (HYDROGEN-3)	PCI/G	110	0.233 U	0.194 U	0.593	-0.144 U	0.039 U
URANIUM-234	PCI/G	13	2.25	1.76	1.96	1.1	1.26
URANIUM-235	PCI/G	8	0.017 U	0.077	0.105	0.07 U	0.021 U
URANIUM-238	PCI/G	14	2	1.53	1.81	1.42	1.15

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 11
SEDIMENT ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD2	WDD2	WDD3	WDD3
Field Sample Identifier :			WDD2	WDD2	WDD3	WDD3
Sample Type :			Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-
Date of Sample :			04/12/12	10/03/12	04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**				
RADIONUCLIDES						
CESIUM-137	*PCI/G*	11	0.121	0.158	0.101	0.022189 U
PLUTONIUM-238	*PCI/G*	2.5	-0.028 U	0.031 U	-0.038 U	-0.031 U
PLUTONIUM-239/240	*PCI/G*	2.3	-0.055 U	0.016 U	-0.006 U	0.017 U
RADIUM-226	*PCI/G*	5	1.25	1.348	1.6	1.335
RADIUM-228	*PCI/G*	5	1.22	1.396	1.45	1.604
STRONTIUM-90	*PCI/G*	1.7	0.167 U	R	0.034 U	R
TECHNETIUM-99	*PCI/G*	19	1.02 U	0.167 U	R	0.641 U
THORIUM-228	*PCI/G*	5	1.69 J	1.21	1.27 J	1
THORIUM-230	*PCI/G*	5	0.289	0.747	1.2	1.05
THORIUM-232	*PCI/G*	5	1.01	0.996	1.07	0.9
TRITIUM (HYDROGEN-3)	*PCI/G*	110	0.167 U	0.283 U	-0.0473 U	-0.0595 U
URANIUM-234	*PCI/G*	13	1.32	1.21	0.881	0.893
URANIUM-235	*PCI/G*	8	0.084	0.053	0.029 U	0.087
URANIUM-238	*PCI/G*	14	1.14	1.36	0.784	0.929

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	MG/KG	77000	15,000	6,800	24,000	4,300	27,000
ANTIMONY	MG/KG	NS	5.7	2.4	6.1	1.5	2.8
ARSENIC	MG/KG	13	6.4	3	11	2.5	7.2
BARIUM	MG/KG	350	130	67	130	30	190
BERYLLIUM	MG/KG	7.2	1.2	0.4	1.4	0.21 J	1.1
BORON	MG/KG	16000	37 J	13 U	45 U	15 U	39 J
CADMIUM	MG/KG	2.5	2.2	0.76	2.4	0.5	1.4
CALCIUM	MG/KG	58900	45,000	43,000	49,000	11,000	72,000
CHROMIUM, TOTAL	MG/KG	25.8	130	39	120	18	67
COBALT	MG/KG	36.7	11	6.1	18	3.5	16
COPPER	MG/KG	50	74	30	120	24	63
IRON	MG/KG	55000	25,000	12,000	41,000	8,000	41,000
LEAD	MG/KG	63	57	24	100	21	50
LITHIUM	MG/KG	160	31	17	34	17	42
MAGNESIUM	MG/KG	14800	10,000	9,300	16,000	3,300	16,000
MANGANESE	MG/KG	1600	570	540	790	180	1,300
MERCURY	MG/KG	0.18	0.17	0.11	0.25	0.073	0.15
NICKEL	MG/KG	30	30	15	46	9	40
POTASSIUM	MG/KG	2860	4,000	1,400	5,500	1,400	5,600

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives, Resident Soil RSL (05/2013) and RI Background Screening Levels (12/2007).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	MG/KG	3.9	1.6 J	1 U	1.8 J	1.1 U	1.8 J
SILVER	MG/KG	2	0.38	0.17	0.59	0.16 J	0.32
SODIUM	MG/KG	331	430	180	990	140	480
THALLIUM	MG/KG	0.78	0.36 J	0.097 U	0.33 U	0.11 U	0.47 J
VANADIUM	MG/KG	390	40	15	57	10	48
ZINC	MG/KG	109	290	130	550	92	390

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives, Resident Soil RSL (05/2013) and RI Background Screening Levels (12/2007).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	MG/KG	77000	10,000	30,000	29,000	31,000	18,000
ANTIMONY	MG/KG	NS	1.4	0.91	1.1	5.2	3.8
ARSENIC	MG/KG	13	6.5	5	8.2	11	7.2
BARIUM	MG/KG	350	120	210	210	210	140
BERYLLIUM	MG/KG	7.2	2.1	1.4	1.5	1.5	0.99
BORON	MG/KG	16000	25 U	22 U	31 U	42 J	25 U
CADMIUM	MG/KG	2.5	2.1	0.84	1	1.5	1.1
CALCIUM	MG/KG	58900	37,000	57,000	64,000	46,000	27,000
CHROMIUM, TOTAL	MG/KG	25.8	44	57	67	86	57
COBALT	MG/KG	36.7	11	15	22	20	14
COPPER	MG/KG	50	41	40	54	81	57
IRON	MG/KG	55000	20,000	43,000	52,000	49,000	33,000
LEAD	MG/KG	63	33	16	28	66	50
LITHIUM	MG/KG	160	33	37	79	36	43
MAGNESIUM	MG/KG	14800	8,300	14,000	17,000	17,000	11,000
MANGANESE	MG/KG	1600	830	700	1,100	1,300	670
MERCURY	MG/KG	0.18	0.15	0.032 J	0.11	0.15	0.14
NICKEL	MG/KG	30	26	39	52	49	35
POTASSIUM	MG/KG	2860	2,900	5,500	6,700	7,300	4,000

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives, Resident Soil RSL (05/2013) and RI Background Screening Levels (12/2007).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	*MG/KG*	3.9	1.8 J	0.89 J	2.3 U	1.2 J	1.1 J
SILVER	*MG/KG*	2	0.23 J	0.18 J	0.25 J	0.38 J	0.28
SODIUM	*MG/KG*	331	340	210	340	490	320
THALLIUM	*MG/KG*	0.78	0.79	0.2 J	0.34 J	0.3 U	0.22 J
VANADIUM	*MG/KG*	390	27	49	53	64	38
ZINC	*MG/KG*	109	230	110	130	360	250

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives, Resident Soil RSL (05/2013) and RI Background Screening Levels (12/2007).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	MG/KG	77000	8,800	8,100	21,000	12,000	29,000
ANTIMONY	MG/KG	NS	2.8	5.9	2	0.85	5
ARSENIC	MG/KG	13	8.9	8.3	5.6	8.6	13
BARIUM	MG/KG	350	94	86	140	110	200
BERYLLIUM	MG/KG	7.2	1	0.46 J	1.2	0.68	1.6
BORON	MG/KG	16000	28 J	25 U	29 U	19 U	38 U
CADMIUM	MG/KG	2.5	2.1	1.9	1.1	0.97	1.7
CALCIUM	MG/KG	58900	110,000	100,000	27,000	16,000	49,000
CHROMIUM, TOTAL	MG/KG	25.8	34	27	30	19	73
COBALT	MG/KG	36.7	13	11	14	10	19
COPPER	MG/KG	50	93	130	60	44	83
IRON	MG/KG	55000	22,000	19,000	31,000	23,000	50,000
LEAD	MG/KG	63	110	150	31	26	75
LITHIUM	MG/KG	160	17 J	23	25	33	37
MAGNESIUM	MG/KG	14800	40,000	39,000	12,000	8,000	19,000
MANGANESE	MG/KG	1600	680	610	540	490	1,500
MERCURY	MG/KG	0.18	0.28	0.4	0.17	0.27	0.17
NICKEL	MG/KG	30	24	26	34	26	47
POTASSIUM	MG/KG	2860	2,100	2,200	4,500	2,800	5,800

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives, Resident Soil RSL (05/2013) and RI Background Screening Levels (12/2007).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	MG/KG	3.9	1.2 J	0.61 J	1.3 J	0.71 J	0.85 U
SILVER	MG/KG	2	0.67	0.76	0.27 J	0.19 J	0.42 J
SODIUM	MG/KG	331	310	360	230	160	440
THALLIUM	MG/KG	0.78	0.32 J	0.2 J	0.21 U	0.2 J	0.28 U
VANADIUM	MG/KG	390	25	25	39	24	55
ZINC	MG/KG	109	760	790	310	390	420

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives, Resident Soil RSL (05/2013) and RI Background Screening Levels (12/2007).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	WDD1	WDD1	WDD2
Field Sample Identifier :			SWSD025	SWSD025	WDD1	WDD1	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			08/07/12	10/02/12	04/12/12	10/03/12	04/12/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	MG/KG	77000	29,000	13,000	33,000	12,000	19,000
ANTIMONY	MG/KG	NS	4.7	2.8	1.1	0.8	1.4
ARSENIC	MG/KG	13	12	6	4.6	2.9	4.1
BARIUM	MG/KG	350	250	110	210	110	170
BERYLLIUM	MG/KG	7.2	1.5	0.77	1.8	0.67 J	0.84 J
BORON	MG/KG	16000	46 J	25 J	47 U	28 U	38 U
CADMIUM	MG/KG	2.5	2.7	0.91	1.3	0.48	0.84
CALCIUM	MG/KG	58900	51,000	25,000	41,000	23,000	25,000
CHROMIUM, TOTAL	MG/KG	25.8	73	35	45	18	34
COBALT	MG/KG	36.7	21	10	16	7.7	12
COPPER	MG/KG	50	77	44	50	24	40
IRON	MG/KG	55000	51,000	24,000	45,000	20,000	30,000
LEAD	MG/KG	63	61	39	24	14	18
LITHIUM	MG/KG	160	40	38	41	33	32
MAGNESIUM	MG/KG	14800	16,000	8,400	15,000	6,100	8,300
MANGANESE	MG/KG	1600	2,200	890	1,300	920	1,600
MERCURY	MG/KG	0.18	0.14	0.13	0.064 J	0.043	0.059
NICKEL	MG/KG	30	50	26	40	19	30
POTASSIUM	MG/KG	2860	6,000	3,200	7,500	3,500	5,200

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives, Resident Soil RSL (05/2013) and RI Background Screening Levels (12/2007).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	WDD1	WDD1	WDD2
Field Sample Identifier :			SWSD025	SWSD025	WDD1	WDD1	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			08/07/12	10/02/12	04/12/12	10/03/12	04/12/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	*MG/KG*	3.9	2.1 J	1 J	1 U	2.1 U	1.1 J
SILVER	*MG/KG*	2	0.6	0.3	0.32 J	0.15 J	0.28 J
SODIUM	*MG/KG*	331	650	260	410	230	300
THALLIUM	*MG/KG*	0.78	2.6	0.18 J	0.56 J	0.2 U	0.28 U
VANADIUM	*MG/KG*	390	58	26	52	21	37
ZINC	*MG/KG*	109	390	200	740	96	200

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives, Resident Soil RSL (05/2013) and RI Background Screening Levels (12/2007).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD2	WDD3	WDD3
Field Sample Identifier :			WDD2	WDD3	WDD3
Sample Type :			Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/03/12	04/12/12	10/02/12
Parameter	Units	Criteria[1]			
METALS					
ALUMINUM	MG/KG	77000	16,000	18,000	7,100
ANTIMONY	MG/KG	NS	1.4	0.93	0.55
ARSENIC	MG/KG	13	3.5	3.8	3.1
BARIUM	MG/KG	350	140	170	91
BERYLLIUM	MG/KG	7.2	0.79 J	0.74 J	0.32 J
BORON	MG/KG	16000	42 U	35 U	21 U
CADMIUM	MG/KG	2.5	0.74	0.71	0.53
CALCIUM	MG/KG	58900	17,000	32,000	21,000
CHROMIUM, TOTAL	MG/KG	25.8	25	27	12
COBALT	MG/KG	36.7	9.3	11	5.8
COPPER	MG/KG	50	31	36	17
IRON	MG/KG	55000	28,000	29,000	13,000
LEAD	MG/KG	63	21	120	7.6
LITHIUM	MG/KG	160	45	25	26
MAGNESIUM	MG/KG	14800	8,200	9,300	4,600
MANGANESE	MG/KG	1600	1,700	2,200	960
MERCURY	MG/KG	0.18	0.066	0.045 J	0.034
NICKEL	MG/KG	30	24	26	13
POTASSIUM	MG/KG	2860	4,900	4,200	2,400

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives, Resident Soil RSL (05/2013) and RI Background Screening Levels (12/2007).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD2	WDD3	WDD3
Field Sample Identifier :			WDD2	WDD3	WDD3
Sample Type :			Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/03/12	04/12/12	10/02/12
Parameter	Units	Criteria[1]			
METALS					
SELENIUM	*MG/KG*	3.9	3.2 U	1.5 J	1.6 U
SILVER	*MG/KG*	2	0.32 J	0.16 J	0.11 J
SODIUM	*MG/KG*	331	290 J	290	170
THALLIUM	*MG/KG*	0.78	1.3 U	0.26 U	0.15 U
VANADIUM	*MG/KG*	390	27	32	15
ZINC	*MG/KG*	109	160	150	56

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives, Resident Soil RSL (05/2013) and RI Background Screening Levels (12/2007).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,1,2-TETRACHLOROETHANE	UG/KG	-	23 U	17 U	57 U	20 U	35 U
1,1,2-TRICHLOROETHANE	UG/KG	-	20 U	15 U	50 U	17 U	31 U
1,1-DICHLOROETHANE	UG/KG	270	20 U	14 U	49 U	17 U	30 U
1,1-DICHLOROETHENE	UG/KG	330	20 U	15 U	50 U	17 U	31 U
1,2,3-TRICHLOROBENZENE	UG/KG	-	29 U	21 U	71 U	24 U	44 U
1,2,4-TRICHLOROBENZENE	UG/KG	-	37 U	27 U	92 U	31 U	57 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	-	82 U	60 U	200 U	69 U	120 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/KG	-	22 U	16 U	55 U	19 U	34 U
1,2-DICHLOROBENZENE	UG/KG	1100	23 U	17 U	57 U	19 U	35 U
1,2-DICHLOROETHANE	UG/KG	20	18 U	13 U	43 U	15 U	27 U
1,2-DICHLOROPROPANE	UG/KG	-	26 U	19 U	64 U	22 U	40 U
1,3-DICHLOROBENZENE	UG/KG	2400	20 U	15 U	50 U	17 U	31 U
1,4-DICHLOROBENZENE	UG/KG	1800	18 U	13 U	45 U	15 U	28 U
2-HEXANONE	UG/KG	-	33 U	24 U	80 U	28 U	50 U
ACETONE	UG/KG	50	52 U	150 J	130 U	140 J	430 J
BENZENE	UG/KG	60	16 U	11 U	39 U	13 U	24 U
BROMOCHLOROMETHANE	UG/KG	-	29 U	21 U	71 U	24 U	44 U
BROMODICHLOROMETHANE	UG/KG	-	15 U	11 U	37 U	13 U	23 U
BROMOFORM	UG/KG	-	20 U	15 U	50 U	17 U	31 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOMETHANE	UG/KG	-	150 U	110 U	380 U	130 U	240 U
CARBON DISULFIDE	UG/KG	-	44 U	32 U	110 U	37 U	66 U
CARBON TETRACHLORIDE	UG/KG	760	18 U	13 U	46 U	16 U	28 U
CHLOROBENZENE	UG/KG	1100	16 U	12 U	41 U	14 U	25 U
CHLOROETHANE	UG/KG	-	170 U	120 U	420 U	150 U	260 U
CHLOROFORM	UG/KG	370	16 U	11 U	39 U	13 U	24 U
CHLOROMETHANE	UG/KG	-	21 U	16 U	53 U	18 U	33 U
CIS-1,2-DICHLOROETHYLENE	UG/KG	250	21 U	15 U	51 U	17 U	31 U
CIS-1,3-DICHLOROPROPENE	UG/KG	-	14 U	10 U	34 U	12 U	21 U
CYCLOHEXANE	UG/KG	-	Not Anaylzed	70 U	Not Anaylzed	81 U	Not Anaylzed
DIBROMOCHLOROMETHANE	UG/KG	-	16 U	12 U	39 U	14 U	24 U
ETHYLBENZENE	UG/KG	1000	20 U	14 U	49 U	17 U	30 U
ISOPROPYLBENZENE (CUMENE)	UG/KG	-	16 U	12 U	41 U	14 U	25 U
METHYL ACETATE	UG/KG	-	Not Anaylzed	160	Not Anaylzed	900	Not Anaylzed
METHYL ETHYL KETONE (2-BUTANONE)	UG/KG	120	65 U	47 U	160 U	55 U	99 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/KG	-	25 U	18 U	62 U	21 U	38 U
METHYLCYCLOHEXANE	UG/KG	-	Not Anaylzed	70 U	Not Anaylzed	81 U	Not Anaylzed
METHYLENE CHLORIDE	UG/KG	50	71 J	30 U	140 J	35 U	64 U
STYRENE	UG/KG	-	15 U	11 U	38 U	13 U	23 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
TERT-BUTYL METHYL ETHER	UG/KG	930	23 U	17 U	57 U	20 U	35 U
TETRACHLOROETHYLENE(PCE)	UG/KG	1300	22 U	16 U	55 U	19 U	34 U
TOLUENE	UG/KG	700	32 J	34 J	73 J	17 U	30 U
TRANS-1,2-DICHLOROETHENE	UG/KG	190	15 U	11 U	38 U	13 U	24 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	-	19 U	14 U	48 U	16 U	30 U
TRICHLOROETHANE	UG/KG	680	16 U	11 U	39 U	13 U	24 U
TRICHLOROETHYLENE (TCE)	UG/KG	470	37 U	27 U	91 U	31 U	56 U
TRICHLOROFLUOROMETHANE	UG/KG	-	19 U	14 U	47 U	16 U	29 U
VINYL CHLORIDE	UG/KG	20	19 U	14 U	46 U	16 U	29 U
XYLENES, TOTAL	UG/KG	-	59 U	43 U	140 U	50 U	89 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,1,2-TETRACHLOROETHANE	UG/KG	-	31 U	25 U	44 U	40 U	33 U
1,1,2-TRICHLOROETHANE	UG/KG	-	27 U	22 U	38 U	35 U	29 U
1,1-DICHLOROETHANE	UG/KG	270	26 U	21 U	38 U	34 U	28 U
1,1-DICHLOROETHENE	UG/KG	330	27 U	22 U	38 U	35 U	29 U
1,2,3-TRICHLOROBENZENE	UG/KG	-	38 U	31 U	54 U	49 U	41 U
1,2,4-TRICHLOROBENZENE	UG/KG	-	49 U	40 U	70 U	64 U	53 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	-	110 U	88 U	150 U	140 U	120 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/KG	-	29 U	24 U	42 U	38 U	32 U
1,2-DICHLOROBENZENE	UG/KG	1100	31 U	25 U	43 U	40 U	33 U
1,2-DICHLOROETHANE	UG/KG	20	23 U	19 U	33 U	30 U	25 U
1,2-DICHLOROPROPANE	UG/KG	-	34 U	28 U	49 U	45 U	37 U
1,3-DICHLOROBENZENE	UG/KG	2400	27 U	22 U	38 U	35 U	29 U
1,4-DICHLOROBENZENE	UG/KG	1800	24 U	19 U	34 U	31 U	26 U
2-HEXANONE	UG/KG	-	43 U	35 U	61 U	56 U	46 U
ACETONE	UG/KG	50	330 J	56 U	460 J	89 U	280 J
BENZENE	UG/KG	60	21 U	17 U	29 U	27 U	22 U
BROMOCHLOROMETHANE	UG/KG	-	38 U	31 U	54 U	50 U	41 U
BROMODICHLOROMETHANE	UG/KG	-	20 U	16 U	29 U	26 U	22 U
BROMOFORM	UG/KG	-	27 U	22 U	38 U	35 U	29 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOMETHANE	UG/KG	-	210 U	170 U	290 U	270 U	220 U
CARBON DISULFIDE	UG/KG	-	58 U	47 U	82 U	75 U	62 U
CARBON TETRACHLORIDE	UG/KG	760	25 U	20 U	35 U	32 U	26 U
CHLOROBENZENE	UG/KG	1100	22 U	18 U	31 U	28 U	23 U
CHLOROETHANE	UG/KG	-	230 U	180 U	320 U	290 U	240 U
CHLOROFORM	UG/KG	370	21 U	17 U	30 U	27 U	22 U
CHLOROMETHANE	UG/KG	-	28 U	23 U	40 U	37 U	31 U
CIS-1,2-DICHLOROETHYLENE	UG/KG	250	27 U	22 U	39 U	35 U	29 U
CIS-1,3-DICHLOROPROPENE	UG/KG	-	18 U	15 U	26 U	24 U	19 U
CYCLOHEXANE	UG/KG	-	130 U	Not Anaylzed	180 U	Not Anaylzed	140 U
DIBROMOCHLOROMETHANE	UG/KG	-	21 U	17 U	30 U	28 U	23 U
ETHYLBENZENE	UG/KG	1000	26 U	21 U	38 U	34 U	28 U
ISOPROPYLBENZENE (CUMENE)	UG/KG	-	22 U	18 U	31 U	28 U	23 U
METHYL ACETATE	UG/KG	-	1,100	Not Anaylzed	1,800	Not Anaylzed	790
METHYL ETHYL KETONE (2-BUTANONE)	UG/KG	120	1,300 U	70 U	1,800 U	110 U	1,400 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/KG	-	33 U	27 U	47 U	43 U	36 U
METHYLCYCLOHEXANE	UG/KG	-	130 U	Not Anaylzed	180 U	Not Anaylzed	140 U
METHYLENE CHLORIDE	UG/KG	50	55 U	61 J	79 U	110 J	59 U
STYRENE	UG/KG	-	20 U	16 U	29 U	26 U	22 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
TERT-BUTYL METHYL ETHER	UG/KG	930	31 U	25 U	44 U	40 U	33 U
TETRACHLOROETHYLENE(PCE)	UG/KG	1300	30 U	24 U	42 U	39 U	32 U
TOLUENE	UG/KG	700	26 U	29 J	61 J	34 U	28 U
TRANS-1,2-DICHLOROETHENE	UG/KG	190	20 U	17 U	29 U	27 U	22 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	-	26 U	21 U	37 U	33 U	28 U
TRICHLOROETHANE	UG/KG	680	21 U	17 U	30 U	27 U	22 U
TRICHLOROETHYLENE (TCE)	UG/KG	470	49 U	40 U	69 U	63 U	52 U
TRICHLOROFLUOROMETHANE	UG/KG	-	25 U	21 U	36 U	33 U	27 U
VINYL CHLORIDE	UG/KG	20	25 U	20 U	35 U	32 U	27 U
XYLENES, TOTAL	UG/KG	-	78 U	63 U	110 U	100 U	83 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,1,2-TETRACHLOROETHANE	UG/KG	-	20 U	33 U	34 U	23 U	45 U
1,1,2-TRICHLOROETHANE	UG/KG	-	18 U	29 U	30 U	20 U	39 U
1,1-DICHLOROETHANE	UG/KG	270	18 U	28 U	30 U	20 U	39 U
1,1-DICHLOROETHENE	UG/KG	330	18 U	29 U	30 U	20 U	40 U
1,2,3-TRICHLOROBENZENE	UG/KG	-	25 U	41 U	43 U	29 U	56 U
1,2,4-TRICHLOROBENZENE	UG/KG	-	33 U	53 U	55 U	37 U	72 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	-	72 U	120 U	120 U	82 U	160 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/KG	-	20 U	32 U	33 U	22 U	43 U
1,2-DICHLOROBENZENE	UG/KG	1100	20 U	33 U	34 U	23 U	45 U
1,2-DICHLOROETHANE	UG/KG	20	16 U	25 U	26 U	18 U	34 U
1,2-DICHLOROPROPANE	UG/KG	-	23 U	37 U	39 U	26 U	50 U
1,3-DICHLOROBENZENE	UG/KG	2400	18 U	29 U	30 U	20 U	40 U
1,4-DICHLOROBENZENE	UG/KG	1800	16 U	26 U	27 U	18 U	35 U
2-HEXANONE	UG/KG	-	29 U	46 U	48 U	33 U	63 U
ACETONE	UG/KG	50	46 U	340 J	570 J	240 J	100 U
BENZENE	UG/KG	60	14 U	22 U	23 U	16 U	30 U
BROMOCHLOROMETHANE	UG/KG	-	26 U	41 U	43 U	29 U	56 U
BROMODICHLOROMETHANE	UG/KG	-	13 U	22 U	22 U	15 U	29 U
BROMOFORM	UG/KG	-	18 U	29 U	30 U	20 U	39 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOMETHANE	UG/KG	-	140 U	220 U	230 U	150 U	300 U
CARBON DISULFIDE	UG/KG	-	38 U	62 U	65 U	43 U	84 U
CARBON TETRACHLORIDE	UG/KG	760	16 U	26 U	27 U	18 U	36 U
CHLOROBENZENE	UG/KG	1100	15 U	24 U	24 U	16 U	32 U
CHLOROETHANE	UG/KG	-	150 U	240 U	250 U	170 U	330 U
CHLOROFORM	UG/KG	370	14 U	22 U	23 U	16 U	30 U
CHLOROMETHANE	UG/KG	-	19 U	31 U	32 U	21 U	42 U
CIS-1,2-DICHLOROETHYLENE	UG/KG	250	18 U	29 U	30 U	20 U	40 U
CIS-1,3-DICHLOROPROPENE	UG/KG	-	12 U	20 U	20 U	14 U	27 U
CYCLOHEXANE	UG/KG	-	Not Anaylzed	140 U	Not Anaylzed	96 U	Not Anaylzed
DIBROMOCHLOROMETHANE	UG/KG	-	14 U	23 U	24 U	16 U	31 U
ETHYLBENZENE	UG/KG	1000	18 U	28 U	30 U	20 U	39 U
ISOPROPYLBENZENE (CUMENE)	UG/KG	-	15 U	24 U	24 U	16 U	32 U
METHYL ACETATE	UG/KG	-	Not Anaylzed	3,200	Not Anaylzed	2,100	Not Anaylzed
METHYL ETHYL KETONE (2-BUTANONE)	UG/KG	120	58 U	1,400 U	97 U	65 U	130 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/KG	-	22 U	36 U	37 U	25 U	49 U
METHYLCYCLOHEXANE	UG/KG	-	Not Anaylzed	140 U	Not Anaylzed	96 U	Not Anaylzed
METHYLENE CHLORIDE	UG/KG	50	57 J	R	62 U	42 U	110 J
STYRENE	UG/KG	-	13 U	22 U	23 U	15 U	30 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
TERT-BUTYL METHYL ETHER	UG/KG	930	20 U	33 U	34 U	23 U	45 U
TETRACHLOROETHYLENE(PCE)	UG/KG	1300	20 U	32 U	33 U	22 U	43 U
TOLUENE	UG/KG	700	1,700	62 J	29 U	20 U	38 U
TRANS-1,2-DICHLOROETHENE	UG/KG	190	14 U	22 U	23 U	15 U	30 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	-	17 U	28 U	29 U	19 U	38 U
TRICHLOROETHANE	UG/KG	680	14 U	22 U	23 U	16 U	30 U
TRICHLOROETHYLENE (TCE)	UG/KG	470	32 U	52 U	55 U	37 U	71 U
TRICHLOROFLUOROMETHANE	UG/KG	-	17 U	27 U	28 U	19 U	37 U
VINYL CHLORIDE	UG/KG	20	17 U	27 U	28 U	19 U	36 U
XYLENES, TOTAL	UG/KG	-	52 U	84 U	87 U	59 U	110 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/03/12	04/12/12	10/03/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,1,2-TETRACHLOROETHANE	UG/KG	-	32 U	46 U	34 U	43 U	49 U
1,1,2-TRICHLOROETHANE	UG/KG	-	28 U	40 U	30 U	37 U	43 U
1,1-DICHLOROETHANE	UG/KG	270	28 U	40 U	29 U	37 U	42 U
1,1-DICHLOROETHENE	UG/KG	330	28 U	41 U	30 U	38 U	43 U
1,2,3-TRICHLOROBENZENE	UG/KG	-	40 U	57 U	42 U	53 U	61 U
1,2,4-TRICHLOROBENZENE	UG/KG	-	52 U	74 U	55 U	69 U	79 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	-	110 U	160 U	120 U	150 U	170 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/KG	-	31 U	45 U	33 U	41 U	47 U
1,2-DICHLOROBENZENE	UG/KG	1100	32 U	46 U	34 U	43 U	49 U
1,2-DICHLOROETHANE	UG/KG	20	25 U	35 U	26 U	33 U	37 U
1,2-DICHLOROPROPANE	UG/KG	-	36 U	52 U	38 U	48 U	55 U
1,3-DICHLOROBENZENE	UG/KG	2400	28 U	41 U	30 U	38 U	43 U
1,4-DICHLOROBENZENE	UG/KG	1800	25 U	36 U	27 U	34 U	38 U
2-HEXANONE	UG/KG	-	45 U	65 U	48 U	60 U	1,000 U
ACETONE	UG/KG	50	240 J	720 J	210 J	710 J	490 J
BENZENE	UG/KG	60	22 U	31 U	23 U	29 U	33 U
BROMOCHLOROMETHANE	UG/KG	-	40 U	58 U	42 U	53 U	61 U
BROMODICHLOROMETHANE	UG/KG	-	21 U	30 U	22 U	28 U	32 U
BROMOFORM	UG/KG	-	28 U	40 U	30 U	37 U	43 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/03/12	04/12/12	10/03/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOMETHANE	UG/KG	-	220 U	310 U	230 U	290 U	330 U
CARBON DISULFIDE	UG/KG	-	61 U	87 U	64 U	81 U	92 U
CARBON TETRACHLORIDE	UG/KG	760	26 U	37 U	27 U	34 U	39 U
CHLOROBENZENE	UG/KG	1100	23 U	33 U	24 U	31 U	35 U
CHLOROETHANE	UG/KG	-	240 U	340 U	250 U	320 U	1,000 U
CHLOROFORM	UG/KG	370	22 U	31 U	23 U	29 U	33 U
CHLOROMETHANE	UG/KG	-	30 U	43 U	31 U	40 U	45 U
CIS-1,2-DICHLOROETHYLENE	UG/KG	250	29 U	41 U	30 U	38 U	43 U
CIS-1,3-DICHLOROPROPENE	UG/KG	-	19 U	27 U	20 U	25 U	29 U
CYCLOHEXANE	UG/KG	-	130 U	Not Anaylzed	140 U	Not Anaylzed	1,000 U
DIBROMOCHLOROMETHANE	UG/KG	-	22 U	32 U	23 U	30 U	34 U
ETHYLBENZENE	UG/KG	1000	28 U	40 U	29 U	37 U	42 U
ISOPROPYLBENZENE (CUMENE)	UG/KG	-	23 U	33 U	24 U	31 U	35 U
METHYL ACETATE	UG/KG	-	1,800	Not Anaylzed	800	Not Anaylzed	660
METHYL ETHYL KETONE (2-BUTANONE)	UG/KG	120	1,300 U	130 U	1,400 U	120 U	2,000 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/KG	-	35 U	50 U	37 U	47 U	1,000 U
METHYLCYCLOHEXANE	UG/KG	-	130 U	Not Anaylzed	140 U	Not Anaylzed	200 U
METHYLENE CHLORIDE	UG/KG	50	58 U	83 U	61 U	77 U	88 U
STYRENE	UG/KG	-	21 U	31 U	22 U	28 U	32 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/03/12	04/12/12	10/03/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
TERT-BUTYL METHYL ETHER	UG/KG	930	32 U	46 U	34 U	43 U	49 U
TETRACHLOROETHYLENE(PCE)	UG/KG	1300	31 U	45 U	33 U	42 U	47 U
TOLUENE	UG/KG	700	29 J	92 J	29 U	37 U	42 U
TRANS-1,2-DICHLOROETHENE	UG/KG	190	21 U	31 U	23 U	29 U	33 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	-	27 U	39 U	29 U	36 U	41 U
TRICHLOROETHANE	UG/KG	680	22 U	31 U	23 U	29 U	33 U
TRICHLOROETHYLENE (TCE)	UG/KG	470	51 U	73 U	54 U	68 U	78 U
TRICHLOROFLUOROMETHANE	UG/KG	-	27 U	38 U	28 U	35 U	40 U
VINYL CHLORIDE	UG/KG	20	26 U	38 U	28 U	35 U	40 U
XYLENES, TOTAL	UG/KG	-	81 U	120 U	86 U	110 U	120 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**		
VOLATILE ORGANIC ANALYSES				
1,1,1,2-TETRACHLOROETHANE	*UG/KG*	-	40 U	28 U
1,1,2-TRICHLOROETHANE	*UG/KG*	-	35 U	24 U
1,1-DICHLOROETHANE	*UG/KG*	270	34 U	24 U
1,1-DICHLOROETHENE	*UG/KG*	330	35 U	25 U
1,2,3-TRICHLOROBENZENE	*UG/KG*	-	49 U	35 U
1,2,4-TRICHLOROBENZENE	*UG/KG*	-	64 U	45 U
1,2-DIBROMO-3-CHLOROPROPANE	*UG/KG*	-	140 U	99 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	*UG/KG*	-	38 U	27 U
1,2-DICHLOROBENZENE	*UG/KG*	1100	40 U	28 U
1,2-DICHLOROETHANE	*UG/KG*	20	30 U	21 U
1,2-DICHLOROPROPANE	*UG/KG*	-	45 U	31 U
1,3-DICHLOROBENZENE	*UG/KG*	2400	35 U	25 U
1,4-DICHLOROBENZENE	*UG/KG*	1800	31 U	22 U
2-HEXANONE	*UG/KG*	-	56 U	39 U
ACETONE	*UG/KG*	50	1,100	230 J
BENZENE	*UG/KG*	60	27 U	19 U
BROMOCHLOROMETHANE	*UG/KG*	-	50 U	35 U
BROMODICHLOROMETHANE	*UG/KG*	-	26 U	18 U
BROMOFORM	*UG/KG*	-	35 U	24 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**		
VOLATILE ORGANIC ANALYSES				
BROMOMETHANE	*UG/KG*	-	270 U	190 U
CARBON DISULFIDE	*UG/KG*	-	75 U	53 U
CARBON TETRACHLORIDE	*UG/KG*	760	32 U	22 U
CHLOROBENZENE	*UG/KG*	1100	28 U	20 U
CHLOROETHANE	*UG/KG*	-	300 U	210 U
CHLOROFORM	*UG/KG*	370	27 U	19 U
CHLOROMETHANE	*UG/KG*	-	37 U	26 U
CIS-1,2-DICHLOROETHYLENE	*UG/KG*	250	35 U	25 U
CIS-1,3-DICHLOROPROPENE	*UG/KG*	-	24 U	17 U
CYCLOHEXANE	*UG/KG*	-	Not Anaylzed	120 U
DIBROMOCHLOROMETHANE	*UG/KG*	-	28 U	19 U
ETHYLBENZENE	*UG/KG*	1000	34 U	24 U
ISOPROPYLBENZENE (CUMENE)	*UG/KG*	-	28 U	20 U
METHYL ACETATE	*UG/KG*	-	Not Anaylzed	840
METHYL ETHYL KETONE (2-BUTANONE)	*UG/KG*	120	110 U	1,200 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	*UG/KG*	-	43 U	30 U
METHYLCYCLOHEXANE	*UG/KG*	-	Not Anaylzed	120 U
METHYLENE CHLORIDE	*UG/KG*	50	72 U	50 U
STYRENE	*UG/KG*	-	26 U	18 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**		
VOLATILE ORGANIC ANALYSES				
TERT-BUTYL METHYL ETHER	*UG/KG*	930	40 U	28 U
TETRACHLOROETHYLENE(PCE)	*UG/KG*	1300	39 U	27 U
TOLUENE	*UG/KG*	700	64 J	30 J
TRANS-1,2-DICHLOROETHENE	*UG/KG*	190	27 U	19 U
TRANS-1,3-DICHLOROPROPENE	*UG/KG*	-	33 U	23 U
TRICHLOROETHANE	*UG/KG*	680	27 U	19 U
TRICHLOROETHYLENE (TCE)	*UG/KG*	470	63 U	44 U
TRICHLOROFLUOROMETHANE	*UG/KG*	-	33 U	23 U
VINYL CHLORIDE	*UG/KG*	20	32 U	23 U
XYLENES, TOTAL	*UG/KG*	-	100 U	71 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/KG	-	33 U	22 J	85 U	64 U	48 U
ACENAPHTHENE	UG/KG	20000	30 U	100 J	77 U	58 U	43 U
ACENAPHTHYLENE	UG/KG	100000	29 U	24 J	74 U	56 U	41 U
ANTHRACENE	UG/KG	100000	57 J	170 J	84 U	64 U	47 U
BENZO(A)ANTHRACENE	UG/KG	1000	240 J	600 J	140 J	200 J	130 J
BENZO(A)PYRENE	UG/KG	1000	300 J	860	180 J	260 J	170 J
BENZO(B)FLUORANTHENE	UG/KG	1000	370 J	1,100 J	250 J	500 J	270 J
BENZO(G,H,I)PERYLENE	UG/KG	100000	230 J	480	140 J	140 J	140 J
BENZO(K)FLUORANTHENE	UG/KG	800	200 J	350 J	180 U	150 J	110 J
CHRYSENE	UG/KG	1000	290 J	650	140 J	280 J	160 J
DIBENZ(A,H)ANTHRACENE	UG/KG	330	110 U	42 J	270 U	210 U	150 U
FLUORANTHENE	UG/KG	100000	400 J	830	190 J	280 J	150 J
FLUORENE	UG/KG	30000	38 U	79 J	98 U	74 U	55 U
INDENO(1,2,3-C,D)PYRENE	UG/KG	500	160 J	470	90 J	110 J	110 J
NAPHTHALENE	UG/KG	12000	26 U	35 J	67 U	51 U	38 U
PHENANTHRENE	UG/KG	100000	200 J	550	91 U	95 J	76 J
PYRENE	UG/KG	100000	600 J	1,000	300 J	520 J	250 J
PESTICIDES							
ALDRIN	UG/KG	5	0.69 U	4.9 U	1.7 U	5.3 U	1 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/KG	20	0.6 U	4.2 U	1.5 U	4.6 U	0.87 U
ALPHA ENDOSULFAN	UG/KG	2400	0.77 U	5.4 U	1.9 U	5.9 U	1.1 U
ALPHA-CHLORDANE	UG/KG	94	0.76 U	5.4 U	1.9 U	5.9 U	1.1 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/KG	36	0.73 U	5.2 U	1.8 U	5.7 U	1.1 U
BETA ENDOSULFAN	UG/KG	2400	0.76 U	5.4 U	1.9 U	5.9 U	1.1 U
CHLORDANE	UG/KG	-	Not Anaylzed	50 U	Not Anaylzed	55 U	Not Anaylzed
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/KG	3.3	1.1 U	7.9 U	2.8 U	8.6 U	1.6 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/KG	3.3	1.7	4.6 U	1.6 U	5 U	0.93 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/KG	3.3	0.72 U	5.1 U	1.8 U	5.6 U	1 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/KG	40	0.6 U	4.2 U	1.5 U	4.6 U	2.2 J
DIELDRIN	UG/KG	5	1.1 J	5.2 U	1.9 U	5.7 U	1.1 U
ENDOSULFAN SULFATE	UG/KG	2400	0.77 U	5.4 U	1.9 U	5.9 U	1.1 U
ENDRIN	UG/KG	14	0.78 U	5.6 U	2 U	6.1 U	1.1 U
ENDRIN ALDEHYDE	UG/KG	-	0.96 J	5.7 U	2 U	6.2 U	1.2 U
ENDRIN KETONE	UG/KG	-	1.5 J	5.3 U	1.9 U	5.8 U	1.1 U
GAMMA BHC (LINDANE)	UG/KG	100	0.62 U	4.4 U	1.6 U	4.8 U	0.9 U
GAMMA-CHLORDANE	UG/KG	-	0.76 U	5.4 U	1.9 U	5.9 U	1.1 U
HEPTACHLOR	UG/KG	42	1 J	5.3 U	1.9 U	5.8 U	2 J
HEPTACHLOR EPOXIDE	UG/KG	-	0.75 U	5.4 U	1.9 U	5.9 U	1.1 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/16/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/KG	-	0.78 U	5.5 U	2 U	6.1 U	1.1 U
TOXAPHENE	UG/KG	-	Not Anaylzed	73 U	Not Anaylzed	79 U	Not Anaylzed
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/KG	100	11 J	4.2 U	15 U	12 J	8.7 U
PCB-1016 (AROCHLOR 1016)	UG/KG	-	6.1 U	4.4 U	15 U	4.8 U	8.9 U
PCB-1221 (AROCHLOR 1221)	UG/KG	-	6 U	4.3 U	15 U	4.7 U	8.9 U
PCB-1232 (AROCHLOR 1232)	UG/KG	-	9.1 U	6.5 U	23 U	7.1 U	13 U
PCB-1242 (AROCHLOR 1242)	UG/KG	-	7.5 U	5.4 U	19 U	5.9 U	11 U
PCB-1248 (AROCHLOR 1248)	UG/KG	-	7.1 U	5.1 U	18 U	5.6 U	10 U
PCB-1254 (AROCHLOR 1254)	UG/KG	-	8.5 U	6.1 U	21 U	12 J	13 U
PCB-1260 (AROCHLOR 1260)	UG/KG	-	11 J	4.2 U	15 U	4.6 U	8.7 U
PCB-1262 (AROCHLOR 1262)	UG/KG	-	8 U	5.7 U	20 U	6.3 U	12 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/KG	-	1,300 U	35 U	1,800 U	55 U	1,400 U
ACENAPHTHENE	UG/KG	20000	1,300 U	32 U	1,800 U	50 U	1,400 U
ACENAPHTHYLENE	UG/KG	100000	1,300 U	30 U	1,800 U	48 U	1,400 U
ANTHRACENE	UG/KG	100000	1,300 U	35 U	1,800 U	55 U	1,400 U
BENZO(A)ANTHRACENE	UG/KG	1000	260 J	47 U	1,800 U	120 J	450 J
BENZO(A)PYRENE	UG/KG	1000	320 J	43 U	1,800 U	140 J	620 J
BENZO(B)FLUORANTHENE	UG/KG	1000	600 J	60 J	1,800 U	220 J	1,100 J
BENZO(G,H,I)PERYLENE	UG/KG	100000	190 J	50 U	1,800 U	130 J	340 J
BENZO(K)FLUORANTHENE	UG/KG	800	1,300 U	74 U	1,800 U	120 U	340 J
CHRYSENE	UG/KG	1000	300 J	50 J	180 J	130 J	540 J
DIBENZ(A,H)ANTHRACENE	UG/KG	330	1,300 U	110 U	1,800 U	180 U	1,400 U
FLUORANTHENE	UG/KG	100000	300 J	69 U	1,800 U	140 J	510 J
FLUORENE	UG/KG	30000	1,300 U	40 U	1,800 U	64 U	1,400 U
INDENO(1,2,3-C,D)PYRENE	UG/KG	500	110 J	37 U	1,800 U	90 J	300 J
NAPHTHALENE	UG/KG	12000	1,300 U	28 U	1,800 U	44 U	1,400 U
PHENANTHRENE	UG/KG	100000	150 J	38 U	1,800 U	68 J	240 J
PYRENE	UG/KG	100000	530 J	60 J	250 J	230 J	790 J
PESTICIDES							
ALDRIN	UG/KG	5	8.9 U	0.72 U	1.2 U	1.1 U	9 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/KG	20	7.7 U	0.63 U	1 U	1 U	7.8 U
ALPHA ENDOSULFAN	UG/KG	2400	9.9 U	0.81 U	1.3 U	1.3 U	10 U
ALPHA-CHLORDANE	UG/KG	94	9.8 U	0.8 U	1.3 U	1.3 U	10 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/KG	36	9.4 U	0.77 U	1.3 U	1.2 U	9.5 U
BETA ENDOSULFAN	UG/KG	2400	9.8 U	0.8 U	1.3 U	1.3 U	9.9 U
CHLORDANE	UG/KG	-	92 U	Not Anaylzed	12 U	Not Anaylzed	93 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/KG	3.3	14 U	1.2 U	1.9 U	1.8 U	14 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/KG	3.3	9.8 J	0.68 U	2.1 J	1.1 U	8.4 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/KG	3.3	9.3 U	0.75 U	1.3 U	1.2 U	9.4 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/KG	40	7.7 U	1.1 J	5.5	1 U	7.8 U
DIELDRIN	UG/KG	5	9.5 U	0.77 U	2 J	1.4 J	9.6 U
ENDOSULFAN SULFATE	UG/KG	2400	9.9 U	0.81 U	1.3 U	1.3 U	10 U
ENDRIN	UG/KG	14	10 U	0.82 U	1.4 U	1.3 U	10 U
ENDRIN ALDEHYDE	UG/KG	-	10 U	0.84 U	1.4 U	1.3 U	10 U
ENDRIN KETONE	UG/KG	-	9.6 U	0.78 U	1.3 U	1.2 U	9.8 U
GAMMA BHC (LINDANE)	UG/KG	100	8 U	0.65 U	1.1 U	1 U	8.1 U
GAMMA-CHLORDANE	UG/KG	-	9.9 U	0.8 U	1.3 U	1.3 U	10 U
HEPTACHLOR	UG/KG	42	9.6 U	0.79 U	1.3 U	1.2 U	9.8 U
HEPTACHLOR EPOXIDE	UG/KG	-	9.8 U	0.79 U	1.3 U	1.3 U	9.9 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/02/12	04/16/12	10/02/12
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/KG	-	10 U	0.82 U	1.4 U	1.3 U	10 U
TOXAPHENE	UG/KG	-	130 U	Not Anaylzed	18 U	Not Anaylzed	130 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/KG	100	51 J	6.3 U	10 U	10 U	54 J
PCB-1016 (AROCHLOR 1016)	UG/KG	-	7.7 U	6.4 U	11 U	10 U	8 U
PCB-1221 (AROCHLOR 1221)	UG/KG	-	7.7 U	6.4 U	11 U	10 U	8 U
PCB-1232 (AROCHLOR 1232)	UG/KG	-	12 U	9.6 U	16 U	15 U	12 U
PCB-1242 (AROCHLOR 1242)	UG/KG	-	9.6 U	8 U	13 U	13 U	9.9 U
PCB-1248 (AROCHLOR 1248)	UG/KG	-	9 U	7.5 U	13 U	12 U	9.4 U
PCB-1254 (AROCHLOR 1254)	UG/KG	-	51 J	9.1 U	15 U	14 U	54 J
PCB-1260 (AROCHLOR 1260)	UG/KG	-	7.5 U	6.3 U	10 U	10 U	7.8 U
PCB-1262 (AROCHLOR 1262)	UG/KG	-	10 U	8.5 U	14 U	14 U	11 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/KG	-	300 U	7,200 U	47 U	16 U	62 U
ACENAPHTHENE	UG/KG	20000	270 U	7,200 U	42 U	15 U	56 U
ACENAPHTHYLENE	UG/KG	100000	260 U	7,200 U	41 U	22 J	54 U
ANTHRACENE	UG/KG	100000	490 J	790 J	47 U	21 J	62 U
BENZO(A)ANTHRACENE	UG/KG	1000	1,700 J	2,600 J	97 J	76 J	170 J
BENZO(A)PYRENE	UG/KG	1000	1,700 J	2,700 J	110 J	91 J	190 J
BENZO(B)FLUORANTHENE	UG/KG	1000	2,200 J	4,500 J	160 J	130 J	290 J
BENZO(G,H,I)PERYLENE	UG/KG	100000	1,200 J	1,600 J	73 J	52 J	150 J
BENZO(K)FLUORANTHENE	UG/KG	800	870 J	1,600 J	99 U	34 U	130 J
CHRYSENE	UG/KG	1000	2,000 J	3,300 J	110 J	87 J	150 J
DIBENZ(A,H)ANTHRACENE	UG/KG	330	960 U	1,900 U	150 U	52 U	200 U
FLUORANTHENE	UG/KG	100000	2,500 J	4,900 J	120 J	130 J	200 J
FLUORENE	UG/KG	30000	340 U	7,200 U	54 U	19 U	71 U
INDENO(1,2,3-C,D)PYRENE	UG/KG	500	740 J	1,100 J	55 J	48 J	110 J
NAPHTHALENE	UG/KG	12000	240 U	7,200 U	37 U	15 J	49 U
PHENANTHRENE	UG/KG	100000	1,600 J	1,900 J	71 J	61 J	89 J
PYRENE	UG/KG	100000	3,900 J	4,700 J	160 J	110 J	340 J
PESTICIDES							
ALDRIN	UG/KG	5	0.62 U	9.8 U	0.96 U	0.66 U	1.3 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/KG	20	0.53 U	8.5 U	0.84 U	0.57 U	1.1 U
ALPHA ENDOSULFAN	UG/KG	2400	0.68 U	11 U	1.1 U	0.73 U	1.4 U
ALPHA-CHLORDANE	UG/KG	94	0.68 U	11 U	1.1 U	0.73 U	1.4 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/KG	36	2.9	10 U	1 U	0.7 U	1.3 U
BETA ENDOSULFAN	UG/KG	2400	0.68 U	11 U	1.1 U	0.73 U	1.4 U
CHLORDANE	UG/KG	-	Not Anaylzed	100 U	Not Anaylzed	6.8 U	Not Anaylzed
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/KG	3.3	3.5	16 U	1.6 U	1.1 U	2 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/KG	3.3	0.58 U	14 J	0.9 U	0.62 U	1.2 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/KG	3.3	0.64 U	10 U	1 U	0.69 U	1.3 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/KG	40	0.53 U	8.5 U	0.84 U	0.57 U	1.3 J
DIELDRIN	UG/KG	5	4.5	12 J	1 U	0.7 U	1.4 U
ENDOSULFAN SULFATE	UG/KG	2400	0.68 U	11 U	1.1 U	0.73 U	1.4 U
ENDRIN	UG/KG	14	0.7 U	11 U	1.1 U	0.75 U	1.4 U
ENDRIN ALDEHYDE	UG/KG	-	2.6	11 U	1.1 U	0.76 U	1.5 U
ENDRIN KETONE	UG/KG	-	0.67 U	11 U	1 U	0.71 U	1.4 U
GAMMA BHC (LINDANE)	UG/KG	100	0.56 U	8.8 U	0.87 U	0.59 U	1.1 U
GAMMA-CHLORDANE	UG/KG	-	0.68 U	11 U	1.1 U	0.73 U	1.4 U
HEPTACHLOR	UG/KG	42	0.67 U	11 U	1 U	0.71 U	1.4 U
HEPTACHLOR EPOXIDE	UG/KG	-	0.67 U	11 U	1.1 U	0.72 U	1.4 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/03/12	04/12/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/KG	-	0.7 U	11 U	1.1 U	0.75 U	1.4 U
TOXAPHENE	UG/KG	-	Not Anaylzed	140 U	Not Anaylzed	9.8 U	Not Anaylzed
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/KG	100	62	220	8.4 U	5.7 U	11 U
PCB-1016 (AROCHLOR 1016)	UG/KG	-	5.4 U	8.7 U	8.6 U	5.9 U	11 U
PCB-1221 (AROCHLOR 1221)	UG/KG	-	5.4 U	8.7 U	8.5 U	5.8 U	11 U
PCB-1232 (AROCHLOR 1232)	UG/KG	-	8.1 U	13 U	13 U	8.8 U	17 U
PCB-1242 (AROCHLOR 1242)	UG/KG	-	6.7 U	11 U	11 U	7.3 U	14 U
PCB-1248 (AROCHLOR 1248)	UG/KG	-	6.3 U	10 U	10 U	6.9 U	13 U
PCB-1254 (AROCHLOR 1254)	UG/KG	-	7.6 U	220	12 U	8.2 U	16 U
PCB-1260 (AROCHLOR 1260)	UG/KG	-	62	8.5 U	8.4 U	5.7 U	11 U
PCB-1262 (AROCHLOR 1262)	UG/KG	-	7.1 U	11 U	11 U	7.7 U	15 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/03/12	04/12/12	10/03/12
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/KG	-	1,300 U	66 U	24 U	61 U	2,100 U
ACENAPHTHENE	UG/KG	20000	1,300 U	60 U	22 U	55 U	2,100 U
ACENAPHTHYLENE	UG/KG	100000	1,300 U	58 U	21 U	53 U	2,100 U
ANTHRACENE	UG/KG	100000	1,300 U	66 U	24 U	61 U	2,100 U
BENZO(A)ANTHRACENE	UG/KG	1000	370 J	89 U	36 J	82 U	2,100 U
BENZO(A)PYRENE	UG/KG	1000	490 J	82 U	46 J	75 U	2,100 U
BENZO(B)FLUORANTHENE	UG/KG	1000	880 J	74 U	66 J	82 J	2,100 U
BENZO(G,H,I)PERYLENE	UG/KG	100000	240 J	96 U	34 U	88 U	2,100 U
BENZO(K)FLUORANTHENE	UG/KG	800	310 J	140 U	50 U	130 U	2,100 U
CHRYSENE	UG/KG	1000	410 J	76 U	45 J	70 U	2,100 U
DIBENZ(A,H)ANTHRACENE	UG/KG	330	1,300 U	210 U	77 U	200 U	2,100 U
FLUORANTHENE	UG/KG	100000	430 J	130 U	62 J	120 U	2,100 U
FLUORENE	UG/KG	30000	1,300 U	76 U	27 U	70 U	2,100 U
INDENO(1,2,3-C,D)PYRENE	UG/KG	500	220 J	69 U	25 U	64 U	2,100 U
NAPHTHALENE	UG/KG	12000	1,300 U	52 U	19 U	48 U	2,100 U
PHENANTHRENE	UG/KG	100000	180 J	71 U	26 J	66 U	2,100 U
PYRENE	UG/KG	100000	770 J	82 U	51 J	90 J	2,100 U
PESTICIDES							
ALDRIN	UG/KG	5	8.7 U	1.4 U	4.9 U	1.3 U	7.2 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/03/12	04/12/12	10/03/12
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/KG	20	7.6 U	1.2 U	4.3 U	1.3 J	6.2 U
ALPHA ENDOSULFAN	UG/KG	2400	9.7 U	1.5 U	5.5 U	1.4 U	8 U
ALPHA-CHLORDANE	UG/KG	94	9.7 U	1.5 U	5.4 U	1.4 U	7.9 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/KG	36	9.2 U	1.4 U	5.2 U	1.3 U	7.6 U
BETA ENDOSULFAN	UG/KG	2400	9.6 U	1.5 U	5.4 U	1.4 U	7.9 U
CHLORDANE	UG/KG	-	90 U	Not Anaylzed	51 U	Not Anaylzed	74 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/KG	3.3	14 U	2.2 U	7.9 U	2 U	12 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/KG	3.3	8.2 U	1.3 U	4.6 U	1.2 U	6.7 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/KG	3.3	9.1 U	1.4 U	5.1 U	1.3 U	7.5 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/KG	40	7.9 J	2.6 J	4.3 U	5.7	6.2 U
DIELDRIN	UG/KG	5	9.3 U	1.5 U	5.3 U	1.4 U	7.7 U
ENDOSULFAN SULFATE	UG/KG	2400	9.7 U	1.5 U	5.5 U	1.4 U	8 U
ENDRIN	UG/KG	14	9.9 U	1.6 U	5.6 U	1.4 U	8.2 U
ENDRIN ALDEHYDE	UG/KG	-	10 U	1.6 U	5.7 U	1.5 U	8.3 U
ENDRIN KETONE	UG/KG	-	9.5 U	1.5 U	5.3 U	1.4 U	7.8 U
GAMMA BHC (LINDANE)	UG/KG	100	7.9 U	1.2 U	4.4 U	1.1 U	6.5 U
GAMMA-CHLORDANE	UG/KG	-	9.7 U	1.5 U	5.4 U	1.4 U	8 U
HEPTACHLOR	UG/KG	42	9.5 U	1.5 J	5.3 U	1.4 U	7.8 U
HEPTACHLOR EPOXIDE	UG/KG	-	9.6 U	1.5 U	5.4 U	1.4 U	7.9 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/03/12	04/12/12	10/03/12
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/KG	-	9.9 U	1.5 U	5.6 U	1.4 U	8.1 U
TOXAPHENE	UG/KG	-	130 U	Not Anaylzed	73 U	Not Anaylzed	110 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/KG	100	47 J	12 U	8.5 U	11 U	12 U
PCB-1016 (AROCHLOR 1016)	UG/KG	-	7.8 U	12 U	8.8 U	11 U	13 U
PCB-1221 (AROCHLOR 1221)	UG/KG	-	7.7 U	12 U	8.7 U	11 U	13 U
PCB-1232 (AROCHLOR 1232)	UG/KG	-	12 U	18 U	13 U	17 U	19 U
PCB-1242 (AROCHLOR 1242)	UG/KG	-	9.6 U	15 U	11 U	14 U	16 U
PCB-1248 (AROCHLOR 1248)	UG/KG	-	9.1 U	14 U	10 U	13 U	15 U
PCB-1254 (AROCHLOR 1254)	UG/KG	-	47 J	17 U	12 U	16 U	18 U
PCB-1260 (AROCHLOR 1260)	UG/KG	-	7.6 U	12 U	8.5 U	11 U	12 U
PCB-1262 (AROCHLOR 1262)	UG/KG	-	10 U	16 U	12 U	15 U	17 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**		
POLYCYCLIC AROMATIC HYDROCARBON				
2-METHYLNAPHTHALENE	*UG/KG*	-	56 U	1,100 U
ACENAPHTHENE	*UG/KG*	20000	51 U	1,100 U
ACENAPHTHYLENE	*UG/KG*	100000	49 U	1,100 U
ANTHRACENE	*UG/KG*	100000	56 U	1,100 U
BENZO(A)ANTHRACENE	*UG/KG*	1000	76 U	1,100 U
BENZO(A)PYRENE	*UG/KG*	1000	69 U	1,100 U
BENZO(B)FLUORANTHENE	*UG/KG*	1000	62 U	1,100 U
BENZO(G,H,I)PERYLENE	*UG/KG*	100000	81 U	1,100 U
BENZO(K)FLUORANTHENE	*UG/KG*	800	120 U	1,100 U
CHRYSENE	*UG/KG*	1000	65 U	1,100 U
DIBENZ(A,H)ANTHRACENE	*UG/KG*	330	180 U	1,100 U
FLUORANTHENE	*UG/KG*	100000	110 U	1,100 U
FLUORENE	*UG/KG*	30000	65 U	1,100 U
INDENO(1,2,3-C,D)PYRENE	*UG/KG*	500	59 U	1,100 U
NAPHTHALENE	*UG/KG*	12000	44 U	1,100 U
PHENANTHRENE	*UG/KG*	100000	61 U	1,100 U
PYRENE	*UG/KG*	100000	70 U	1,100 U
PESTICIDES				
ALDRIN	*UG/KG*	5	1.2 U	0.77 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**		
PESTICIDES				
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	*UG/KG*	20	1 U	0.67 U
ALPHA ENDOSULFAN	*UG/KG*	2400	1.3 U	0.86 U
ALPHA-CHLORDANE	*UG/KG*	94	1.3 U	0.86 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	*UG/KG*	36	1.2 U	0.82 U
BETA ENDOSULFAN	*UG/KG*	2400	1.3 U	0.85 U
CHLORDANE	*UG/KG*	-	Not Anaylzed	8 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	*UG/KG*	3.3	1.9 U	1.2 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	*UG/KG*	3.3	1.1 U	1.1 J
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	*UG/KG*	3.3	1.2 U	0.81 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	*UG/KG*	40	1 U	1.2 J
DIELDRIN	*UG/KG*	5	1.2 U	1.7 J
ENDOSULFAN SULFATE	*UG/KG*	2400	1.3 U	0.86 U
ENDRIN	*UG/KG*	14	1.3 U	0.88 U
ENDRIN ALDEHYDE	*UG/KG*	-	1.3 U	0.9 U
ENDRIN KETONE	*UG/KG*	-	1.3 U	0.84 U
GAMMA BHC (LINDANE)	*UG/KG*	100	1 U	0.7 U
GAMMA-CHLORDANE	*UG/KG*	-	1.3 U	0.86 U
HEPTACHLOR	*UG/KG*	42	1.3 U	0.84 U
HEPTACHLOR EPOXIDE	*UG/KG*	-	1.3 U	0.85 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/12/12	10/02/12
Parameter	**Units**	**Criteria[1]**		
PESTICIDES				
METHOXYCHLOR	*UG/KG*	-	1.3 U	0.88 U
TOXAPHENE	*UG/KG*	-	Not Anaylzed	11 U
POLYCHLORINATED BIPHENYLS				
PCB, TOTAL	*UG/KG*	100	10 U	6.7 U
PCB-1016 (AROCHLOR 1016)	*UG/KG*	-	10 U	6.9 U
PCB-1221 (AROCHLOR 1221)	*UG/KG*	-	10 U	6.9 U
PCB-1232 (AROCHLOR 1232)	*UG/KG*	-	15 U	10 U
PCB-1242 (AROCHLOR 1242)	*UG/KG*	-	13 U	8.5 U
PCB-1248 (AROCHLOR 1248)	*UG/KG*	-	12 U	8.1 U
PCB-1254 (AROCHLOR 1254)	*UG/KG*	-	14 U	9.7 U
PCB-1260 (AROCHLOR 1260)	*UG/KG*	-	10 U	6.7 U
PCB-1262 (AROCHLOR 1262)	*UG/KG*	-	14 U	9.1 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 15
2012 GROUNDWATER LEVEL MEASUREMENTS

Summary of Water Level Measurements
First Quarter 2012 (February 14, 2012)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
A23A	321.90	10.24	311.66
A42	319.70	4.70	315.00
A43	320.50	5.57	314.93
A45	321.70	8.14	313.56
A50	321.30	9.10	312.20
A51	321.20	7.05	314.15
A52	321.10	5.41	315.69
A54	320.70	9.66	311.04
A55	320.60	9.15	311.45
A56	322.30	12.21	310.09
A57	321.40	15.15	306.25
BH5	321.32	10.72	310.60
BH12	320.85	7.95	312.90
BH15	320.16	7.09	313.07
BH48	322.04	8.26	313.78
BH49	320.23	10.39	309.84
BH49A	320.65	2.94	317.71
BH50	319.25	10.38	308.87
BH51	321.24	7.04	314.20
BH57	322.84	7.54	315.30
BH59	321.45	8.86	312.59
BH60	322.32	5.10	317.22
BH61	318.50	13.83	304.67
BH62	318.60	11.89	306.71
BH63	323.01	6.96	316.05
BH64	319.32	3.14	316.18
BH70	321.29	9.43	311.86
B02W19D	319.90	4.47	315.43
B02W20D	322.00	5.19	316.81
B02W20S	322.00	2.89	319.11
OW01A	321.95	Decommissioned	
OW01B	321.49	3.28	318.21
OW02A	321.50	11.40	310.10
OW02B	321.55	2.80	318.75
OW03A	321.67	10.62	311.05
OW03B	321.38	4.33	317.05
OW04A	320.52	9.89	310.63
OW04B	320.17	2.94	317.23
OW05A	319.59	8.82	310.77
OW05B	319.68	3.33	316.35
OW06A	322.34	10.02	312.32
OW06B	322.28	4.50	317.78

Summary of Water Level Measurements
Second Quarter 2012 (May 19, 2012)

Well No.	Depth to Water (ft)	Groundwater Elevation (ft)
A23A	7.03	314.87
A42	5.80	313.90
A43	5.15	315.35
A45	9.31	312.39
A50	10.78	310.52
A51	9.56	311.64
A52	6.44	314.66
A54	8.89	311.81
A55	8.36	312.24
A56	11.68	310.62
A57	12.27	309.13
BH5	10.22	311.10
BH12	7.94	312.91
BH15	6.00	314.16
BH48	8.21	313.83
BH49	10.85	309.38
BH49A	3.37	317.28
BH50	9.11	310.14
BH51	6.70	314.54
BH57	7.80	315.04
BH59	8.69	312.76
BH60	5.70	316.62
BH61	12.20	306.30
BH62	10.93	307.67
BH63	6.95	316.06
BH64	4.31	315.01
BH70	8.97	312.32
B02W19D	4.65	315.25
B02W20D	5.70	316.30
B02W20S	3.40	318.60
OW01A	Decommissioned	
OW01B	3.63	317.86
OW02A	10.77	310.73
OW02B	3.69	317.86
OW03A	10.46	311.21
OW03B	5.51	315.87
OW04A	9.29	311.23
OW04B	4.75	315.42
OW05A	8.35	311.24
OW05B	4.37	315.31
OW06A	9.70	312.64
OW06B	6.66	315.62

Summary of Water Level Measurements
Third Quarter 2012 (August 7, 2012)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
A23A	321.90	10.45	311.45
A42	319.70	10.00	309.70
A43	320.50	8.50	312.00
A45	321.70	12.85	308.85
A50	321.30	14.15	307.15
A51	321.20	12.85	308.35
A52	321.10	10.30	310.80
A54	320.70	9.50	311.20
A55	320.60	9.08	311.52
A56	322.30	12.28	310.02
A57	321.40	13.50	307.90
BH5	321.32	11.33	309.99
BH12	320.85	7.90	312.95
BH15	320.16	7.39	312.77
BH48	322.04	8.66	313.38
BH49	320.23	10.90	309.33
BH49A	320.65	9.40	311.25
BH50	319.25	12.65	306.60
BH51	321.24	8.00	313.24
BH57	322.84	8.27	314.57
BH59	321.45	9.12	312.33
BH60	322.32	6.45	315.87
BH61	318.50	14.91	303.59
BH62	318.60	12.38	306.22
BH63	323.01	8.12	314.89
BH64	319.32	10.15	309.17
BH70	321.29	9.74	311.55
B02W19D	319.90	5.17	314.73
B02W20D	322.00	6.48	315.52
B02W20S	322.00	10.74	311.26
OW01A	321.95	Decommissioned	
OW01B	321.49	7.70	313.79
OW02A	321.50	11.60	309.90
OW02B	321.55	8.20	313.35
OW03A	321.67	11.55	310.12
OW03B	321.38	8.95	312.43
OW04A	320.52	10.30	310.22
OW04B	320.17	8.20	311.97
OW05A	319.59	9.40	310.19
OW05B	319.68	10.90	308.78
OW06A	322.34	10.35	311.99
OW06B	322.28	9.50	312.78

Summary of Water Level Measurements
Fourth Quarter 2012 (October 01, 2012)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
A23A	321.90	12.55	309.35
A42	319.70	8.68	311.02
A43	320.50	9.03	311.47
A45	321.70	12.76	308.94
A50	321.30	15.45	305.85
A51	321.20	11.42	309.78
A52	321.10	10.47	310.63
A54	320.70	11.63	309.07
A55	320.60	10.22	310.38
A56	322.30	14.54	307.76
A57	321.40	14.73	306.67
BH5	321.32	13.46	307.86
BH12	320.85	9.93	310.92
BH15	320.16	9.47	310.69
BH48	322.04	10.31	311.73
BH49	320.23	13.31	306.92
BH49A	320.65	8.49	312.16
BH50	319.25	15.21	304.04
BH51	321.24	10.42	310.82
BH57	322.84	10.41	312.43
BH59	321.45	11.07	310.38
BH60	322.32	8.65	313.67
BH61	318.50	17.08	301.42
BH62	318.60	14.75	303.85
BH63	323.01	10.41	312.60
BH64	319.32	10.19	309.13
BH70	321.29	10.85	310.44
B02W19D	319.90	7.11	312.79
B02W20D	322.00	8.61	313.39
B02W20S	322.00	8.73	313.27
OW01A	321.95	Decommissioned	
OW01B	321.49	8.16	313.33
OW02A	321.50	8.06	313.44
OW02B	321.55	9.07	312.48
OW03A	321.67	13.61	308.06
OW03B	321.38	6.25	315.13
OW04A	320.52	12.60	307.92
OW04B	320.17	8.07	312.10
OW05A	319.59	11.77	307.82
OW05B	319.68	13.58	306.10
OW06A	322.34	12.81	309.53
OW06B	322.28	7.81	314.47

TABLE 15
2012 GROUNDWATER LEVEL MEASUREMENTS

Summary of Water Level Measurements
First Quarter 2012 (February 14, 2012)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
OW07A	319.77	7.37	312.40
OW07B	319.69	4.45	315.24
OW08A	318.91	7.46	311.45
OW08B	318.97	4.82	314.15
OW09A	318.66	6.48	312.18
OW09B	318.82	2.98	315.84
OW10A	320.01	7.53	312.48
OW10B	320.13	3.25	316.88
OW11A	319.05	5.98	313.07
OW11B	319.09	3.37	315.72
OW12A	320.42	7.46	312.96
OW12B	319.09	4.99	314.10
OW13A	321.54	9.42	312.12
OW13B	321.09	3.05	318.04
OW14A	320.52	10.81	309.71
OW14B	320.73	2.52	318.21
OW15A	320.30	11.49	308.81
OW15B	320.12	2.00	318.12
OW16A	320.63	10.82	309.81
OW16B	320.06	2.59	317.47
OW17A	320.31	3.18	317.13
OW17B	320.29	9.69	310.60
OW18A	321.09	9.40	311.69
OW18B	320.76	3.75	317.01

Summary of Water Level Measurements
Second Quarter 2012 (May 19, 2012)

Well No.	Depth to Water (ft)	Groundwater Elevation (ft)
OW07A	7.08	312.69
OW07B	4.55	315.14
OW08A	7.02	311.89
OW08B	4.80	314.17
OW09A	6.18	312.48
OW09B	3.58	315.24
OW10A	7.28	312.73
OW10B	3.90	316.23
OW11A	5.82	313.23
OW11B	3.65	315.44
OW12A	7.25	313.17
OW12B	5.41	313.68
OW13A	8.95	312.59
OW13B	3.42	317.67
OW14A	10.08	310.44
OW14B	4.30	316.43
OW15A	10.61	309.69
OW15B	3.92	316.20
OW16A	9.96	310.67
OW16B	4.10	315.96
OW17A	5.80	314.51
OW17B	3.85	316.44
OW18A	8.56	312.53
OW18B	4.32	316.44

Summary of Water Level Measurements
Third Quarter 2012 (August 7, 2012)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
OW07A	319.77	7.75	312.02
OW07B	319.69	11.45	308.24
OW08A	318.91	7.77	311.14
OW08B	318.97	10.52	308.45
OW09A	318.66	6.78	311.88
OW09B	318.82	11.30	307.52
OW10A	320.01	7.95	312.06
OW10B	320.13	6.34	313.79
OW11A	319.05	6.38	312.67
OW11B	319.09	11.88	307.21
OW12A	320.42	7.77	312.65
OW12B	319.09	13.55	305.54
OW13A	321.54	9.68	311.86
OW13B	321.09	8.95	312.14
OW14A	320.52	11.06	309.46
OW14B	320.73	9.63	311.10
OW15A	320.30	11.57	308.73
OW15B	320.12	10.40	309.72
OW16A	320.63	10.70	309.93
OW16B	320.06	7.95	312.11
OW17A	320.31	9.54	310.77
OW17B	320.29	8.41	311.88
OW18A	321.09	9.39	311.70
OW18B	320.76	10.06	310.70

Summary of Water Level Measurements
Fourth Quarter 2012 (October 01, 2012)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
OW07A	319.77	9.79	309.98
OW07B	319.69	13.22	306.47
OW08A	318.91	10.06	308.85
OW08B	318.97	11.38	307.59
OW09A	318.66	8.98	309.68
OW09B	318.82	13.95	304.87
OW10A	320.01	10.03	309.98
OW10B	320.13	9.49	310.64
OW11A	319.05	8.41	310.64
OW11B	319.09	8.48	310.61
OW12A	320.42	9.80	310.62
OW12B	319.09	13.88	305.21
OW13A	321.54	11.90	309.64
OW13B	321.09	8.95	312.14
OW14A	320.52	13.19	307.33
OW14B	320.73	10.11	310.62
OW15A	320.30	13.61	306.69
OW15B	320.12	10.86	309.26
OW16A	320.63	12.71	307.92
OW16B	320.06	7.77	312.29
OW17A	320.31	11.97	308.34
OW17B	320.29	7.08	313.21
OW18A	321.09	11.43	309.66
OW18B	320.76	8.10	312.66

Summary of Water Level Measurements
NEW WELLS - 2000

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
201A	321.47	4.30	317.17
203A	321.87	3.88	317.99
213A	321.37	6.86	314.51
215A	320.26	6.72	313.54
302A	320.53	4.35	316.18
303A	321.83	3.68	318.15
404A	323.73	6.35	317.38
411A	322.05	4.00	318.05
415A	321.27	5.97	315.30
505	317.80	9.46	308.34
603A**	320.57	2.30	318.27
606A	321.49	2.63	318.86
808A	319.27	3.34	315.93
810A	318.44	3.99	314.45

Summary of Water Level Measurements
NEW WELLS - 2000

Well No.	Depth to Water (ft)	Groundwater Elevation (ft)
201A	4.75	316.72
203A	4.54	317.33
213A	6.02	315.35
215A	4.80	315.46
302A	4.40	316.13
303A	4.00	317.83
404A	6.22	317.51
411A	4.45	317.60
415A	3.66	317.61
505	6.39	311.41
603A	2.30	318.27
606A	4.08	317.41
808A	2.47	316.80
810A	4.24	314.20

Summary of Water Level Measurements
NEW WELLS - 2000

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
201A	321.47	10.00	311.47
203A	321.87	9.14	312.73
213A	321.37	11.21	310.16
215A	320.26	12.81	307.45
302A	320.53	10.58	309.95
303A	321.83	9.92	311.91
404A	323.73	12.38	311.35
411A	322.05	16.29	305.76
415A	321.27	10.53	310.74
505	317.80	19.58	298.22
603A	320.57	10.93	309.64
606A	321.49	11.91	309.58
808A	319.27	13.44	305.83
810A	318.44	16.42	302.02

Summary of Water Level Measurements
NEW WELLS - 2000

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
201A	321.47	5.46	316.01
203A	321.87	5.22	316.65
213A	321.37	13.10	308.27
215A	320.26	12.69	307.57
302A	320.53	7.79	312.74
303A	321.83	8.52	313.31
404A	323.73	12.98	310.75
411A	322.05	16.48	305.57
415A	321.27	12.72	308.55
505	317.80	20.00	297.80
603A	320.57	9.47	311.10
606A	321.49	12.71	308.78
808A	319.27	15.95	303.32
810A	318.44	16.29	302.15

TABLE 15
2012 GROUNDWATER LEVEL MEASUREMENTS

816A	320.62	1.55	319.07
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW228	320.85	4.58	316.27
MW229	320.61	6.95	313.66
MW313	320.88	4.49	316.39
MW314	318.94	21.92	297.02
MW422*	321.36	22.20	299.16
MW423	322.39	7.83	314.56
MW424	320.93	2.85	318.08
MW860	320.06	5.68	314.38
MW861	319.92	9.49	310.43
MW862	319.62	4.55	315.07
MW863	319.61	7.65	311.96
NEW WELLS - 2009			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW921	319.88	10.15	309.73
MW922	318.56	2.82	315.74
MW923	319.53	15.05	304.48
MW930	323.16	6.78	316.38
MW934	322.20	4.28	317.92
MW935	319.33	4.16	315.17
MW936	320.64	2.60	318.04
MW938	319.54	3.76	315.78
MW941	318.98	3.29	315.69
MW943	321.60	3.33	318.27

816A	2.70	317.92
NEW WELLS - 2003		
Well No.		Groundwater Elevation (ft)
MW228	4.55	316.30
MW229	6.94	313.67
MW313	4.05	316.83
MW314	4.00	314.94
MW422	21.29	300.07
MW423	4.84	317.55
MW424	3.42	317.51
MW860	8.42	311.64
MW861	9.00	310.92
MW862	7.42	312.20
MW863	6.55	313.06
NEW WELLS - 2009		
Well No.		Groundwater Elevation (ft)
MW921	7.95	311.93
MW922	3.50	315.06
MW923	4.61	314.92
MW930	4.92	318.24
MW934	3.81	318.39
MW935	5.29	314.04
MW936	3.70	316.94
MW938	4.70	314.84
MW941	3.68	315.30
MW943	4.02	317.58

816A	320.62	3.40	317.22
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW228	320.85	8.29	312.56
MW229	320.61	7.43	313.18
MW313	320.88	12.51	308.37
MW314*	318.94	22.05	296.89
MW422*	321.36	22.17	299.19
MW423	322.39	12.74	309.65
MW424	320.93	17.79	303.14
MW860	320.06	11.05	309.01
MW861	319.92	9.40	310.52
MW862	319.62	10.05	309.57
MW863	319.61	7.90	311.71
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW921	319.88	18.28	301.60
MW922	318.56	12.18	306.38
MW923	319.53	19.65	299.88
MW930	323.16	12.97	310.19
MW934	322.20	16.84	305.36
MW935	319.33	9.32	310.01
MW936	320.64	8.47	312.17
MW938	319.54	10.62	308.92
MW941	318.98	7.84	311.14
MW943	321.60	7.85	313.75

816A	320.62	2.51	318.11
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW228	320.85	7.82	313.03
MW229	320.61	9.29	311.32
MW313	320.88	15.07	305.81
MW314*	318.94	21.91	297.03
MW422*	321.36	22.04	299.32
MW423	322.39	14.57	307.82
MW424	320.93	16.62	304.31
MW860	320.06	10.16	309.90
MW861	319.92	12.02	307.90
MW862	319.62	8.51	311.11
MW863	319.61	9.94	309.67
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW921	319.88	18.25	301.63
MW922	318.56	13.78	304.78
MW923	319.53	21.78	297.75
MW930	323.16	13.55	309.61
MW934	322.20	18.54	303.66
MW935	319.33	9.56	309.77
MW936	320.64	9.57	311.07
MW938	319.54	11.08	308.46
MW941	318.98	7.84	311.14
MW943	321.60	6.73	314.87

*MW422 - Dry bottom of well recorded.
*MW314 - Dry bottom of well recorded.
**603 - Water in casing frozen.

*Dry - bottom well recoreded

Table 16
2012 Groundwater Field Parameter Measurements
Niagara Falls Storage Site

Well ID	Date	pH	Temperature (°F[a])	Spec. Cond.[b] (mS/cm[c])	DO[d] (mg/L[e])	Turbidity (NTU[h])	ORP[f] (mV[g])	Volume Purged (Liters[i])	Discharge milliter PM[j]
OW04A	2/14/2012	8.83	47.1	1.25	6.86	0.2	95	3.6	142
OW04B	2/14/2012	7.85	45.3	1.87	9.63	3.9	121	4.8	236
313	4/18/12	6.78	52.6	4.40	3.27	0.0	167	3.6	118
505	4/11/12	6.96	50.3	5.29	3.27	3.3	96	3.0	143
201A	4/11/12	6.85	49.4	1.79	0.80	40.0	115	3.6	118
302A	4/18/12	7.47	50.5	8.12	2.08	0.0	158	5.0	165
411A	4/17/12	7.04	53.0	2.34	1.95	0.0	56	4.1	125
415A	4/12/12	7.42	51.3	2.82	1.38	0.0	27	4.4	145
A42	4/16/12	6.58	61.0	1.28	0.91	0.0	221	10.4	315
A45	4/16/12	7.13	72.6	1.74	3.89	48.0	3	6.0	200
A50	4/18/12	7.82	51.4	1.83	3.17	2.9	193	5.2	174
A55	4/17/12	10.14	55.5	3.42	2.95	23.0	49	6.3	190
B02W20S	4/16/12	7.46	64.0	1.32	5.00	13.0	216	4.5	150
BH49	4/17/12	8.74	51.7	1.37	1.00	2.9	-122	6.0	200
BH49A	4/17/12	7.50	52.2	1.85	2.02	0.0	178	4.5	150
MW862	4/12/12	6.98	56.1	2.02	3.82	0.0	206	3.3	163
MW863	4/12/12	7.60	53.9	2.06	3.80	0.0	176	3.6	121
MW921	4/10/12	6.65	51.9	3.94	4.03	0.0	186	2.2	146
MW934	4/18/12	7.17	50.3	3.55	3.98	28.1	159	4.7	155
MW935	4/16/12	7.32	61.7	2.84	4.47	0.6	182	4.2	175
OW03A	4/18/12	7.47	54.5	2.03	1.17	24.8	59	2.5	83
OW03B	4/18/12	7.81	48.7	1.86	6.48	2.6	185	2.5	82
OW04A	4/17/12	9.38	51.8	1.28	1.07	0.0	123	3.9	111
OW04B	4/17/12	7.66	49.1	1.84	1.00	0.0	143	9.0	300
OW05A	4/16/12	7.80	55.9	1.37	1.28	126.0	159	4.0	160
OW05B	4/16/12	7.27	53.7	1.59	4.02	0.0	213	3.8	150
OW06A	4/10/12	7.94	54.2	1.85	3.62	3.9	177	4.0	115
OW06B	4/10/12	7.32	51.9	1.89	8.72	4.2	215	2.4	96
OW07A	4/11/12	7.26	50.4	2.11	0.48	9.1	-19	6.9	115
OW07B	4/11/12	7.74	46.0	2.05	6.00	4.6	205	3.7	106
OW11A	4/18/12	7.78	47.4	1.63	2.17	15.1	182	4.4	132
OW11B	4/18/12	7.89	47.9	1.46	2.66	11.3	155	3.6	119
OW12A	4/10/12	7.93	52.6	1.76	1.48	3.7	184	4.0	158
OW12B	4/10/12	8.02	51.5	1.05	4.90	45	165	2.5	125
OW13A	4/11/12	7.56	52.8	2.07	0.95	4.1	-83	11.7	293
OW13B	4/11/12	7.39	47.7	3.09	2.80	27.5	140	5.3	150
OW15A	4/16/12	7.70	60.8	2.17	0.63	44.3	-91	11.4	190
OW15B	4/16/12	8.09	66.7	0.84	3.91	0.0	158	4.8	138
OW17A	4/16/12	7.72	64.1	2.68	0.69	0.0	117	3.2	126
OW17B	4/16/12	7.91	58.6	1.31	3.74	0.0	114	3.2	128
OW18B	4/18/12	7.91	63.6	1.86	4.00	0.0	190	3.7	82
OW04A	8/7/12	7.76	67.9	1.19	0.88	0.0	15	8.1	270
OW04B	8/7/12	7.22	66.5	1.64	1.87	0.0	121	6.8	227
313	10/4/2012	6.78	62.0	4.42	1.90	12.8	-55	4.4	147
505[1,2,4]	10/3/2012								
201A	10/4/2012	7.05	69.7	0.86	3.29	9.4	107	3.5	116
302A	10/4/2012	6.92	67.5	7.93	1.22	5.0	-4	4.1	137
411A**	10/2/2012	6.88	62.4	4.21	NA	1.1	-85		
415A	10/4/2012	6.74	60.2	2.73	0.64	4.7	-18	2.7	111
A42	10/2/2012	6.77	62.2	1.24	0.45	2.1	44	5.3	150
A45	10/3/2012	6.98	65.8	2.06	0.70	30.0	-300	2.7	100
A50	10/3/2012	7.27	60.2	1.79	1.01	0.0	-14	2.7	100
A55	10/2/2012	11.37	57.9	2.85	0.79	28.5	-143	3.6	120
B02W20S	10/4/2012	7.02	67.4	1.44	0.86	22.0	0	2.6	100
BH49	10/3/2012	8.60	59.9	1.28	1.48	0.0	-232	3.1	122
BH49A	10/3/2012	7.41	62.5	1.87	1.74	0.0	-174	4.1	137
MW862	10/2/2012	7.03	64.9	1.74	0.68	8.8	75	2.7	100
MW863	10/2/2012	7.67	62.7	1.68	0.99	26.3	174	2.7	100
MW921[3]	10/3/2012								
MW922[2]	10/3/2012	6.94	63.6	4.55	1.11	4.8	33	3.6	103

Table 16
2012 Groundwater Field Parameter Measurements
Niagara Falls Storage Site

Well ID	Date	pH	Temperature (°F[a])	Spec. Cond.[b] (mS/cm[c])	DO[d] (mg/L[e])	Turbidity (NTU[h])	ORP[f] (mV[g])	Volume Purged (Liters[i])	Discharge milliter PM[j]
MW934[3]	10/2/2012	6.78	57.1	3.62	NA	736.0	209		
MW935	10/4/2012	7.37	62.0	3.20	3.16	1.7	25	2.2	80
OW03A	10/2/2012	6.97	60.2	2.06	0.85	0.0	-77	4.0	133
OW03B	10/2/2012	6.97	62.4	1.96	0.72	0.0	-45	3.8	127
OW04A	10/4/2012	7.62	62.6	1.30	0.76	0.0	-77	5.0	125
OW04B	10/3/2012	7.20	65.9	1.65	1.39	8.0	-16	5.4	200
OW05A	10/3/2012	8.19	63.0	1.37	1.80	31.1	-162	3.5	117
OW05B	10/3/2012	7.22	64.2	1.61	1.50	0.0	-32	3.6	120
OW06A	10/2/2012	7.64	61.5	1.83	0.85	12.0	18	2.7	100
OW06B	10/2/2012	7.13	60.9	1.76	0.63	0.0	112	2.7	100
OW07A	10/1/2012	7.73	63.1	2.12	1.00	0.0	-80	2.3	84
OW07B	10/1/2012	7.20	64.7	2.00	1.09	0.0	128	2.7	100
OW11A	10/1/2012	7.48	67.5	1.55	0.60	0.0	-64	4.1	102
OW11B	10/2/2012	7.10	63.0	1.48	4.02	0.6	159	3.5	100
OW12A	10/2/2012	7.13	58.4	1.61	0.65	5.8	-82	3.5	117
OW12B[1]	10/2/2012								
OW13A	10/1/2012	7.85	63.4	1.99	3.95	47.0	-104	3.0	100
OW13B	10/1/2012	7.53	65.2	2.53	2.12	0.0	108	5.4	178
OW15A	10/4/2012	7.54	64.2	2.11	0.59	12.6	-103	3.9	122
OW15B	10/4/2012	7.15	63.3	1.49	1.26	3.3	150	3.0	104
OW17A	10/3/2012	7.66	66.0	2.65	0.58	0.0	44	3.4	97
OW17B	10/3/2012	7.35	66.2	1.40	0.47	0.0	53	3.5	100
OW18B	10/3/2012	7.20	62.2	2.05	0.61	0.0	159	3.9	110

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	302A	302A	411A
Field Sample Identifier :			201A	201A	302A	302A	411A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/11/12	10/04/12	04/18/12	10/04/12	04/17/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	480	330	570	550	740
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	480	330	570	550	740
BROMIDE	MG/L	2	0.14 U	0.17 U	1.5	2.3 J	0.14 U
CHLORIDE (AS CL)	MG/L	250	5.8	1.9 J	440	550	15
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,300	580	8,100	8,700	1,800
FLUORIDE	MG/L	1.5	0.23 J	0.46 J	0.3 J	0.16 J	0.46 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.048 U	0.1 U	0.048 U	0.41 J	0.048 U
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.09 U	0.054 U	0.09 U	0.054 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	2.8 U	0.072 U	0.084 U	0.072 U	0.084 U
SULFATE	MG/L	250	510	230	4,900	7,500 J	710

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			411A	415A	415A	505	A42
Field Sample Identifier :			411A	415A	415A	505	A42
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/04/12	04/11/12	04/16/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	530	610	620	780	430
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	530	610	620	780	430
BROMIDE	MG/L	2	0.65	0.14 U	0.17 U	2.3	0.41 J
CHLORIDE (AS CL)	MG/L	250	70	150	160 J	190	23
DISSOLVED SOLIDS, TOTAL	MG/L	-	4,700	2,400	2,600	4,600	940
FLUORIDE	MG/L	1.5	0.22 J	3.7	1.9 J	0.27 J	0.16 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.1 U	0.048 U	0.1 U	0.048 U	0.23 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.09 U	0.054 U	0.09 U	0.054 U	0.054 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	2,900 J	0.084 U	0.072 U	2.8 U	2.8 U
SULFATE	MG/L	250	3,800 J	870	1,100	2,400	310

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A42	A45	A45	A50	A50
Field Sample Identifier :			A42	A45	A45	A50	A50
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/16/12	10/03/12	04/18/12	10/03/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	450	470	490	440	430
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	450	470	490	440	430
BROMIDE	MG/L	2	0.37 J	0.14 U	0.35 J	0.54	0.17 U
CHLORIDE (AS CL)	MG/L	250	20	64	56 J	25	18
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,100	1,700	1,700	1,300	1,300
FLUORIDE	MG/L	1.5	0.096 U	0.16 J	0.36 J	0.38 J	0.33 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.1 U	0.34	0.1 U	0.2 J	0.18 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.09 U	0.054 U	0.09 U	0.054 U	0.09 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.072 U	2.8 U	0.072 U	0.084 U	0.072 U
SULFATE	MG/L	250	300	740	780	570	600

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A55	A55	B02W20S	B02W20S	BH49
Field Sample Identifier :			A55	A55	B02W20S	B02W20S	BH49
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/02/12	04/16/12	10/04/12	04/17/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	20 U	20 U	480	490	120
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	35	35	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	36	35	480	490	120
BROMIDE	MG/L	2	0.6	0.49	0.14 U	0.17 U	0.71
CHLORIDE (AS CL)	MG/L	250	57	52	27	30 J	48
DISSOLVED SOLIDS, TOTAL	MG/L	-	3,300	2,600	990	8,400	1,000
FLUORIDE	MG/L	1.5	0.024 U	0.096 U	0.37 J	0.45 J	0.19 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.45	0.1 U	0.39	0.64 J	0.28 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.09 U	0.054 U	0.09 U	0.054 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.084 U	0.072 U	2.8 U	0.072 U	0.084 U
SULFATE	MG/L	250	2,200	1,600	330	400	480

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			BH49	BH49A	BH49A	MW313	MW313
Field Sample Identifier :			BH49	BH49A	BH49A	MW313	MW313
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/17/12	10/03/12	04/18/12	10/04/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	71	400	410	570	520
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	87	400	410	570	520
BROMIDE	MG/L	2	0.22 J	0.14 U	0.76	0.54	0.17 U
CHLORIDE (AS CL)	MG/L	250	36	53	45	40	28 J
DISSOLVED SOLIDS, TOTAL	MG/L	-	510	1,400	1,400	4,700	4,400
FLUORIDE	MG/L	1.5	0.29 J	0.28 J	0.3 J	0.16 J	0.18 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.1 U	0.29 J	0.1 U	0.28 J	0.1 U
NITROGEN, NITRITE (AS N)	MG/L	1	0.09 U	0.054 U	0.09 U	0.054 U	0.09 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.072 U	0.084 U	0.072 U	0.084 U	0.072 U
SULFATE	MG/L	250	260	590	600	2,800	3,300

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW862	MW862	MW863	MW863	MW921
Field Sample Identifier :			MW862	MW862	MW863	MW863	MW921
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/12/12	10/02/12	04/12/12	10/02/12	04/10/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	570	570	210	230	690
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	570	570	210	230	690
BROMIDE	MG/L	2	0.5	2.9 J	0.51	0.24 J	1.9
CHLORIDE (AS CL)	MG/L	250	120	710	32	26	170
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,700	1,400	1,800	1,700	3,400
FLUORIDE	MG/L	1.5	0.27 J	1.9 J	0.32 J	0.12 J	0.24 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.048 U	1 U	0.73	0.17 J	0.048 U
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.9 U	0.054 U	0.09 U	0.054 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.084 U	0.72 U	0.084 U	0.072 U	2.8 U
SULFATE	MG/L	250	540	48	970	92	1,500

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW922	MW934	MW935	MW935	OW03A
Field Sample Identifier :			MW922	MW934	MW935	MW935	OW03A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/18/12	04/16/12	10/04/12	04/18/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	410	670	530	590	470
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	410	670	530	590	470
BROMIDE	MG/L	2	0.69	0.62	0.14 U	0.17 U	0.46
CHLORIDE (AS CL)	MG/L	250	34	47	29	33 J	32
DISSOLVED SOLIDS, TOTAL	MG/L	-	4,600	3,100	2,400	2,700	1,600
FLUORIDE	MG/L	1.5	0.14 J	0.36 J	0.38 J	0.32 J	0.26 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.26 J	0.048 U	0.29 J	0.1 U	0.58
NITROGEN, NITRITE (AS N)	MG/L	1	0.09 U	0.054 U	0.054 U	0.09 U	0.054 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.072 U	0.084 U	2.8 U	0.072 U	0.084 U
SULFATE	MG/L	250	3,200	1,600	1,300	1,500	700

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW03A	OW03B	OW03B	OW04A	OW04A
Field Sample Identifier :			OW03A	OW03B	OW03B	OW04A	OW04A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/18/12	10/02/12	04/17/12	08/07/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	480	460	490	130	150
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	480	460	490	130	150
BROMIDE	MG/L	2	0.36 J	0.14 U	0.17 U	0.58	0.34 J
CHLORIDE (AS CL)	MG/L	250	25	30	4	35	32
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,600	1,300	1,400	980	1,000
FLUORIDE	MG/L	1.5	0.15 J	0.37 J	0.096 U	0.26 J	0.49 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.1 U	0.35	0.27 J	0.8	0.1 U
NITROGEN, NITRITE (AS N)	MG/L	1	0.09 U	0.054 U	0.09 U	0.054 U	0.09 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.072 U	0.084 U	0.072 U	0.084 U	0.072 U
SULFATE	MG/L	250	780	560	570	490	500

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04A	OW04B	OW04B	OW04B	OW05A
Field Sample Identifier :			OW04A	OW04B	OW04B	OW04B	OW05A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/04/12	04/17/12	08/07/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	150	330	340	340	250
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	150	330	340	340	250
BROMIDE	MG/L	2	0.59 J	0.14 U	0.17 U	0.17 U	4.8 U
CHLORIDE (AS CL)	MG/L	250	30 J	120	81	81	43
DISSOLVED SOLIDS, TOTAL	MG/L	-	930	1,400	1,400	1,300	970
FLUORIDE	MG/L	1.5	0.096 U	0.46 J	0.096 U	0.46 J	0.8 U
NITROGEN, NITRATE (AS N)	MG/L	10	0.1 U	0.048 U	0.1 U	0.26 J	1.6 U
NITROGEN, NITRITE (AS N)	MG/L	1	0.09 U	0.054 U	0.09 U	0.09 U	1.8 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.072 U	0.084 U	0.072 U	0.072 U	2.8 U
SULFATE	MG/L	250	700	560	530	540	450

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW05A	OW05B	OW05B	OW06A	OW06A
Field Sample Identifier :			OW05A	OW05B	OW05B	OW06A	OW06A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/16/12	10/04/12	04/10/12	10/02/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	260	380	390	220	230
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	260	380	390	220	230
BROMIDE	MG/L	2	0.4 J	0.14 U	0.17 U	0.46	0.22 J
CHLORIDE (AS CL)	MG/L	250	55	16	14 J	33	22
DISSOLVED SOLIDS, TOTAL	MG/L	-	990	1,200	960	1,500	1,700
FLUORIDE	MG/L	1.5	0.096 U	0.25 J	0.41 J	0.3 J	0.17 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.1 U	0.048 U	0.1 U	0.67	0.22 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.09 U	0.054 U	0.09 U	0.054 U	0.09 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.072 U	2.8 U	0.072 U	2.8 U	0.072 U
SULFATE	MG/L	250	440	550	610	790	860

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW06B	OW06B	OW07A	OW07A	OW07B
Field Sample Identifier :			OW06B	OW06B	OW07A	OW07A	OW07B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/10/12	10/02/12	04/11/12	10/01/12	04/11/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	530	550	200	190	410
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	530	550	200	190	410
BROMIDE	MG/L	2	0.14 U	0.17 U	0.58	0.42 J	0.14 U
CHLORIDE (AS CL)	MG/L	250	49	43	42	36	19
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,400	1,300	1,700	1,800	1,600
FLUORIDE	MG/L	1.5	0.26 J	0.25 J	0.26 J	0.27 J	0.28 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.048 U	0.1 U	0.37	0.28 J	0.048 U
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.09 U	0.054 U	0.09 U	0.054 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	2.8 U	0.072 U	2.8 U	0.072 U	2.8 U
SULFATE	MG/L	250	520	490	940	970	750

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW11A	OW11A	OW11B	OW11B	OW12A
Field Sample Identifier :			OW11A	OW11A	OW11B	OW11B	OW12A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/18/12	10/01/12	04/18/12	10/02/12	04/10/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	220	230	340	370	200
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	220	230	340	370	200
BROMIDE	MG/L	2	0.51	0.24 J	0.14 U	0.17 U	0.14 U
CHLORIDE (AS CL)	MG/L	250	28	23	16	15	24
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,300	1,300	1,100	1,300	1,400
FLUORIDE	MG/L	1.5	0.28 J	0.27 J	0.33 J	0.44 J	0.29 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.72	0.1 U	0.21 J	0.1 U	0.32
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.09 U	0.054 U	0.09 U	0.054 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.084 U	0.072 U	0.084 U	0.072 U	2.8 U
SULFATE	MG/L	250	660	700	510	520	740

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW12A	OW12B	OW13A	OW13A	OW13B
Field Sample Identifier :			OW12A	OW12B	OW13A	OW13A	OW13B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/10/12	04/11/12	10/01/12	04/11/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	220	280	200	200	570
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	220	280	200	200	570
BROMIDE	MG/L	2	0.17 U	0.14 U	0.14 U	0.3 J	0.14 U
CHLORIDE (AS CL)	MG/L	250	19	2	39	32	58
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,500	590	1,600	1,600	2,800
FLUORIDE	MG/L	1.5	0.18 J	0.42 J	0.29 J	0.17 J	0.28 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.13 J	0.048 U	0.048 U	0.13 J	0.048 U
NITROGEN, NITRITE (AS N)	MG/L	1	0.09 U	0.054 U	0.054 U	0.09 U	0.054 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.072 U	10 J	2.8 U	0.072 U	2.8 U
SULFATE	MG/L	250	740	190	890	900	1,400

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW13B	OW15A	OW15A	OW15B	OW17A
Field Sample Identifier :			OW13B	OW15A	OW15A	OW15B	OW17A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/04/12	04/16/12	04/16/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	550	95	96	350	100
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	550	95	96	350	100
BROMIDE	MG/L	2	0.17 U	0.8	1.1 J	0.14 U	0.51
CHLORIDE (AS CL)	MG/L	250	40	69	57 J	2	38
DISSOLVED SOLIDS, TOTAL	MG/L	-	2,500	1,900	2,000	640	2,300
FLUORIDE	MG/L	1.5	0.24 J	0.31 J	0.19 J	0.43 J	0.26 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.1 U	0.048 U	0.1 U	0.8	0.77
NITROGEN, NITRITE (AS N)	MG/L	1	0.09 U	0.054 U	0.09 U	0.054 U	0.054 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.072 U	2.8 U	0.072 U	2.8 U	2.8 U
SULFATE	MG/L	250	1,300	1,000	1,300	170	1,300

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW17A	OW17B	OW17B	OW18B	OW18B
Field Sample Identifier :			OW17A	OW17B	OW17B	OW18B	OW18B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/16/12	10/03/12	04/16/12	10/03/12
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	110	410	440	540	590
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	110	410	440	540	590
BROMIDE	MG/L	2	0.98	0.14 U	0.17 U	0.14 U	0.17 U
CHLORIDE (AS CL)	MG/L	250	31	7.5	8.7	9.8	8.7
DISSOLVED SOLIDS, TOTAL	MG/L	-	2,300	880	980	1,200	1,300
FLUORIDE	MG/L	1.5	0.33 J	0.32 J	0.15 J	0.33 J	0.49 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.23 J	0.048 U	0.1 U	0.39	3.2 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.09 U	0.054 U	0.09 U	0.054 U	0.09 U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	MG/L	-	0.072 U	2.8 U	0.072 U	2.8 U	0.072 U
SULFATE	MG/L	250	1,500	320	430	480	50

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	302A	302A	411A
Field Sample Identifier :			201A	201A	302A	302A	411A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/11/12	10/04/12	04/18/12	10/04/12	04/17/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	1.44 U	-0.23954 U	-0.191 U	2.2202 U	-0.783 U
PLUTONIUM-238	PCI/L	15	0.036 U	0.002 U	0.12 U	0.021 U	-0.002 U
PLUTONIUM-239/240	PCI/L	15	0.005 U	0.088 U	-0.084 U	-0.02 U	0.02 U
RADIUM-226	PCI/L	3	0.0633 U	0.321 U	0.107 U	0.28 U	0.333 U
RADIUM-228	PCI/L	5	0.308 U	0.627 U	0.369 U	0.548 U	0.409 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	-0.313 U	0.363 U	0.263 U	-0.136 U	0.629 U
TECHNETIUM-99	PCI/L	900	0.561 U	20.2 U	R	8.7 U	7.79 U
THORIUM-228	PCI/L	15	0.059 U	0.009 U	0.058 U	0.025 U	0.018 U
THORIUM-230	PCI/L	15	-0.056 U	0.009 U	0.039	-0.055 U	-0.017 U
THORIUM-232	PCI/L	15	0.014 U	-0.009 U	-0.007 U	0 U	-0.009 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	139 U	15.8 U	-42.1 U	270	-99.6 U
TOTAL URANIUM	UG/L	30	14.4	7.91	63.1	61.3	16.1

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			411A	415A	415A	505	A42
Field Sample Identifier :			411A	415A	415A	505	A42
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/04/12	04/11/12	04/16/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.57273 U	1.9 U	0.31385 U	-0.52 U	0.805 U
PLUTONIUM-238	PCI/L	15	0.001 U	0.168 U	-0.043 U	0.163 U	0.024 U
PLUTONIUM-239/240	PCI/L	15	0.078 U	0.096 U	-0.016 U	-0.041 U	-0.101 U
RADIUM-226	PCI/L	3	0.159 U	0 U	0.183 U	0.0617 U	0.479 U
RADIUM-228	PCI/L	5	0.719 J	0.461 U	0.317 U	0.224 U	0.187 U
TOTAL RADIUM	PCI/L	5	0.719	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	-0.162 U	0.106 U	0.328 U	0.011 U	0.114 U
TECHNETIUM-99	PCI/L	900	-7.46 U	-0.552 U	-0.262 U	-1.69 U	R
THORIUM-228	PCI/L	15	-0.011 U	0.081 U	-0.091 U	0.03 U	0.049 U
THORIUM-230	PCI/L	15	R	0.005 U	-0.045 U	0.028 U	-0.035 U
THORIUM-232	PCI/L	15	-0.01 U	0.007 U	0.045 U	-0.036 U	0.007 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-44.5 U	31.7 U	7.96 U	-58.3 U	-7.91 U
TOTAL URANIUM	UG/L	30	14.2	14.5	27.7	22.1	45.4

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			A42	A45	A45	A50	A50
Field Sample Identifier :			A42	A45	A45	A50	A50
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/16/12	10/03/12	04/18/12	10/03/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.98224 U	-0.886 U	-0.056557 U	1.56 U	-1.0653 U
PLUTONIUM-238	PCI/L	15	-0.005 U	0.07 U	-0.013 U	0.076 U	-0.007 U
PLUTONIUM-239/240	PCI/L	15	0.011 U	-0.028 U	0.003 U	-0.039 U	0.002 U
RADIUM-226	PCI/L	3	0.116 U	0.391 U	0.275 U	-0.137 U	0 U
RADIUM-228	PCI/L	5	0.312 U	0.145 U	0.722 U	0.424 U	0.175 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.477 U	-0.695 U	-0.267 U	-0.278 U	0.242 U
TECHNETIUM-99	PCI/L	900	16.3 U	28.3 U	-2.75 U	R	-15.9 U
THORIUM-228	PCI/L	15	0.029 U	0.009 U	0.015 U	0.065 U	-0.047 U
THORIUM-230	PCI/L	15	-0.019 U	-0.033 U	0.042 U	0.013 U	-0.048 U
THORIUM-232	PCI/L	15	0 U	0 U	-0.008 U	-0.006 U	-0.007 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	94.7 U	78 U	-34.3 U	-15.7 U	-23.6 U
TOTAL URANIUM	UG/L	30	109	27.6	13.7	19.8	16.6

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			A55	A55	B02W20S	B02W20S	BH49
Field Sample Identifier :			A55	A55	B02W20S	B02W20S	BH49
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/02/12	04/16/12	10/04/12	04/17/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.316 U	0.16695 U	-0.727 U	-0.67015 U	0.649 U
PLUTONIUM-238	PCI/L	15	-0.076 U	-0.024 U	0.105 U	-0.034 U	-0.082 U
PLUTONIUM-239/240	PCI/L	15	-0.164 U	0.048 U	-0.021 U	0.006 U	0.041 U
RADIUM-226	PCI/L	3	0.124 U	0.151 U	0.112 U	0.191 U	0.11 U
RADIUM-228	PCI/L	5	0.145 U	0.0968 U	0.384 U	0.401 U	-0.22 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.058 U	0.044 U	0.279 U	0.274 U	0.663 U
TECHNETIUM-99	PCI/L	900	9.32 U	35.4 U	2.1 U	6.76 U	2.56 U
THORIUM-228	PCI/L	15	0.087	-0.019 U	-0.016 U	-0.001 U	0.019 U
THORIUM-230	PCI/L	15	0.009 U	-0.049 U	-0.008 U	0 U	-0.038 U
THORIUM-232	PCI/L	15	-0.009 U	0.009 U	0.015 U	0.008 U	-0.019 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-145 U	-5.29 U	-98.9 U	0 U	-74.1 U
TOTAL URANIUM	UG/L	30	0.129	0.03 U	13	13	1.23

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			BH49	BH49A	BH49A	MW313	MW313
Field Sample Identifier :			BH49	BH49A	BH49A	MW313	313
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/17/12	10/03/12	04/18/12	10/04/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	1.1109 U	-0.383 U	-0.5491 U	0.549 U	-0.98178 U
PLUTONIUM-238	PCI/L	15	-0.004 U	-0.07 U	-0.032 U	0.167 U	0.006 U
PLUTONIUM-239/240	PCI/L	15	0.019 U	0.018 U	0.022 U	-0.121 U	0.018 U
RADIUM-226	PCI/L	3	0.276 U	0 U	0.156 U	0.167	0.206 U
RADIUM-228	PCI/L	5	0.434 U	0.0368 U	0.421 U	0.193 U	0.469 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	0.167	Not Detected
STRONTIUM-90	PCI/L	8	0.111 U	-0.215 U	0.414 U	-0.398 U	-0.144 U
TECHNETIUM-99	PCI/L	900	7.05 U	1.14 U	26.9 U	31.3 U	-0.0674 U
THORIUM-228	PCI/L	15	0.059 U	-0.049 U	-0.036 U	0.057 U	-0.041 U
THORIUM-230	PCI/L	15	0.008 U	-0.051 U	0 U	-0.03 U	-0.094 U
THORIUM-232	PCI/L	15	-0.008 U	-0.014 U	-0.009 U	-0.006 U	0.037 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-79.3 U	34.1 U	5.27 U	-81.7 U	-122 U
TOTAL URANIUM	UG/L	30	0.904	17.6	16	23.7	35.1

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW862	MW862	MW863	MW863	MW921
Field Sample Identifier :			MW862	MW862	MW863	MW863	MW921
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/12/12	10/02/12	04/12/12	10/02/12	04/10/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0.218 U	0.15317 U	-1.21 U	-0.77608 U	-0.344 U
PLUTONIUM-238	PCI/L	15	0.089 U	-0.002 U	0.217 U	0.001 U	-0.025 U
PLUTONIUM-239/240	PCI/L	15	-0.073 U	R	-0.115 U	0.059 U	-0.053 U
RADIUM-226	PCI/L	3	1.13	0.257 U	0.504 U	0.345 U	0.231 U
RADIUM-228	PCI/L	5	0.269 U	0.779 U	0.487 U	0.396 U	0.322 U
TOTAL RADIUM	PCI/L	5	1.13	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	-0.245 U	-0.307 U	-0.467 U	0.071 U	0.093 U
TECHNETIUM-99	PCI/L	900	5.21 U	6.87 U	0.249 U	14.3 U	-0.721 U
THORIUM-228	PCI/L	15	-0.013 U	-0.042 U	-0.045 U	-0.001 U	0.055 U
THORIUM-230	PCI/L	15	-0.034 U	-0.039 U	0.001 U	-0.039 U	-0.002 U
THORIUM-232	PCI/L	15	-0.032 U	-0.008 U	-0.009 U	0 U	0.004 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	0 U	21 U	-125 U	34.1 U	-114 U
TOTAL URANIUM	UG/L	30	25.3	21.3	4.16	4.37	26

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW922	MW934	MW934	MW935	MW935
Field Sample Identifier :			MW922	MW934	MW934	MW935	MW935
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/18/12	10/02/12	04/16/12	10/04/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-2.1668 U	0.024 U	Not Anaylzed	0.559 U	-0.15109 U
PLUTONIUM-238	PCI/L	15	0.039 U	-0.012 U	Not Anaylzed	-0.067 U	0.021 U
PLUTONIUM-239/240	PCI/L	15	0.034 U	-0.091 U	Not Anaylzed	-0.002 U	-0.025 U
RADIUM-226	PCI/L	3	R	0.242 U	0.998	0.414 U	0.167 U
RADIUM-228	PCI/L	5	0.402 U	0.191 U	0.577 U	0.626 U	0.377 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	0.998	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.375 U	0.202 U	Not Anaylzed	-0.363 U	-0.106 U
TECHNETIUM-99	PCI/L	900	7.83 U	R	Not Anaylzed	7.6 U	17.5 U
THORIUM-228	PCI/L	15	0.011 U	0.049 U	0.187	-0.031 U	-0.017 U
THORIUM-230	PCI/L	15	0.03 U	-0.014 U	0.129	0.03 U	-0.035 U
THORIUM-232	PCI/L	15	-0.011 U	0 U	0.124	0 U	0.009 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-7.92 U	-21.1 U	Not Anaylzed	-21.2 U	5.28 U
TOTAL URANIUM	UG/L	30	28	24.5	19.6	25.9	27.4

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW03A	OW03A	OW03B	OW03B	OW04A
Field Sample Identifier :			OW03A	OW03A	OW03B	OW03B	OW04A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/18/12	10/02/12	04/18/12	10/02/12	02/14/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0 U	-1.0497 U	-1.12 U	-0.42068 U	-0.189 U
PLUTONIUM-238	PCI/L	15	0.075 U	-0.02 U	-0.007 U	0.021 U	0.022 U
PLUTONIUM-239/240	PCI/L	15	0.001 U	0.028 U	-0.073 U	0.037 U	-0.151 U
RADIUM-226	PCI/L	3	0.166 U	-0.049 U	0.117 U	-0.047 U	-0.182 U
RADIUM-228	PCI/L	5	0.28 U	0.544 U	0.168 U	0.222 U	0.484 J
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	0.484
STRONTIUM-90	PCI/L	8	0.148 U	0.172 U	-0.003 U	0.022 U	-0.917 U
TECHNETIUM-99	PCI/L	900	R	3.94 U	R	4.44 U	2.35 U
THORIUM-228	PCI/L	15	0.053 U	0.019 U	-0.009 U	-0.02 U	1.29 J
THORIUM-230	PCI/L	15	-0.016 U	-0.027 U	0.023 U	-0.03 U	0.291
THORIUM-232	PCI/L	15	0 U	0.009 U	0.014 U	-0.01 U	0.047 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-15.9 U	-79.4 U	13.2 U	-53 U	-77.9 U
TOTAL URANIUM	UG/L	30	12.7	11.3	15.6	17	3.15

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04A	OW04A	OW04A	OW04B	OW04B
Field Sample Identifier :			OW04A	OW04A	OW04A	OW04B	OW04B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	08/07/12	10/04/12	02/14/12	04/17/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.394 U	-0.105 U	-1.2051 U	0.597 U	1.36 U
PLUTONIUM-238	PCI/L	15	0.038 U	0.004 U	0.035 U	0.003 U	0.172 U
PLUTONIUM-239/240	PCI/L	15	-0.025 U	-0.013 U	-0.006 U	-0.053 U	-0.709 U
RADIUM-226	PCI/L	3	0.306 U	0.977	0.524 U	0.21 U	0.0642 U
RADIUM-228	PCI/L	5	0.0317 U	0.379 U	0.169 U	0.244 U	0.539 U
TOTAL RADIUM	PCI/L	5	Not Detected	0.977	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.15 U	0.247 U	-0.287 U	-0.149 U	0.787 U
TECHNETIUM-99	PCI/L	900	-0.788 U	-27.2 U	0.913 U	2.97 U	-1.74 U
THORIUM-228	PCI/L	15	0.041 U	-0.009 U	0 U	0.483 J	-0.087 U
THORIUM-230	PCI/L	15	-0.016 U	-0.029 U	-0.035 U	0.25	-0.05 U
THORIUM-232	PCI/L	15	0.016 U	0 U	0 U	0.023 U	0.003 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-166 U	21.1 U	680	-31.7 U	-44.4 U
TOTAL URANIUM	UG/L	30	2.11	2.54	1.82	52.85	42.5

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04B	OW04B	OW05A	OW05A	OW05B
Field Sample Identifier :			OW04B	OW04B	OW05A	OW05A	OW05B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			08/07/12	10/03/12	04/16/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0.638 U	0.19564 U	-0.172 U	0.13035 U	-0.191 U
PLUTONIUM-238	PCI/L	15	0.005 U	-0.044 U	-0.055 U	0.003 U	-0.013 U
PLUTONIUM-239/240	PCI/L	15	0.004 U	0.003 U	0.005 U	0.001 U	-0.08 U
RADIUM-226	PCI/L	3	0.2 U	0.28 U	0.0571 U	0.217 U	-0.176 U
RADIUM-228	PCI/L	5	0.338 U	0.719 J	0.182 U	0.246 U	0.463 U
TOTAL RADIUM	PCI/L	5	Not Detected	0.719	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.05 U	-0.384 U	1.07	-0.509 U	0.117 U
TECHNETIUM-99	PCI/L	900	-27.9 U	13.3 U	4.53 U	3.64 U	5.68 U
THORIUM-228	PCI/L	15	0.086 J	0.022 U	-0.049 U	0.014 U	-0.062 U
THORIUM-230	PCI/L	15	0.003 U	0.033 U	-0.008 U	-0.053 U	0.023 U
THORIUM-232	PCI/L	15	-0.002 U	0.077 U	-0.008 U	0.015 U	0.008 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	79.3 U	-84 U	-171 U	-5.32 U	-58.3 U
TOTAL URANIUM	UG/L	30	37.4	40.3	1.82	2.03	14.4

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW05B	OW06A	OW06A	OW06B	OW06B
Field Sample Identifier :			OW05B	OW06A	OW06A	OW06B	OW06B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/10/12	10/02/12	04/10/12	10/02/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0.70753 U	-0.064 U	-0.20302 U	0.295 U	0.39758 U
PLUTONIUM-238	PCI/L	15	-0.041 U	-0.093 U	0.01 U	-0.239 U	-0.025 U
PLUTONIUM-239/240	PCI/L	15	0.044 U	0.02 U	-0.006 U	0.005 U	0.011 U
RADIUM-226	PCI/L	3	0.266 U	0.636 U	0.0521 U	0.492 U	-0.175 U
RADIUM-228	PCI/L	5	0.344 U	-0.304 U	0.627 U	0.421 U	0.509 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	-0.563 U	-0.157 U	-0.271 U	0.215 U	-0.063 U
TECHNETIUM-99	PCI/L	900	19.2 U	-2.22 U	15.7 U	5.56 U	17.2 U
THORIUM-228	PCI/L	15	0.15 U	-0.068 U	0 U	0.052 U	0 U
THORIUM-230	PCI/L	15	0.037 U	-0.023 U	0.011 U	-0.021 U	0 U
THORIUM-232	PCI/L	15	0.074	-0.008 U	0 U	0.022 U	-0.02 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-13.2 U	85.7 U	-76.3 U	-79.1 U	-5.23 U
TOTAL URANIUM	UG/L	30	9.79	2.64	2.14	22.8	19.4

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW07A	OW07A	OW07B	OW07B	OW11A
Field Sample Identifier :			OW07A	OW07A	OW07B	OW07B	OW11A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/11/12	10/01/12	04/11/12	10/10/12	04/18/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0.023 U	-0.24919 U	-1.05 U	Not Anaylzed	-0.079 U
PLUTONIUM-238	PCI/L	15	0.091 U	-0.023 U	0.046 U	Not Anaylzed	-0.025 U
PLUTONIUM-239/240	PCI/L	15	-0.035 U	0.011 U	0.077 U	Not Anaylzed	0.039 U
RADIUM-226	PCI/L	3	0.198 U	0.0519 U	0.123 U	0.0925 U	0.492
RADIUM-228	PCI/L	5	0.195 U	0.144 U	0.108 U	0.256 U	0.545 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	0.492
STRONTIUM-90	PCI/L	8	0.208 U	-0.025 U	-0.255 U	Not Anaylzed	-0.479 U
TECHNETIUM-99	PCI/L	900	-2.08 U	12.3 U	-1.14 U	Not Anaylzed	15.6 U
THORIUM-228	PCI/L	15	-0.047 U	0.029 U	-0.076 U	0.022 U	0.103 U
THORIUM-230	PCI/L	15	-0.045 U	0 U	-0.013 U	0.006 U	0.009 U
THORIUM-232	PCI/L	15	0.006 U	0.009 U	0.008 U	0.021 U	0.017 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-85.1 U	-52.6 U	-26.4 U	Not Anaylzed	-92.5 U
TOTAL URANIUM	UG/L	30	1.77	1.66	17.7	19.2	3.6

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW11A	OW11B	OW11B	OW12A	OW12A
Field Sample Identifier :			OW11A	OW11B	OW11B	OW12A	OW12A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/18/12	10/02/12	04/10/12	10/02/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.055066 U	-1.76 U	1.3125 U	-0.851 U	-0.26257 U
PLUTONIUM-238	PCI/L	15	-0.04 U	-0.106 U	-0.021 U	-0.013 U	-0.016 U
PLUTONIUM-239/240	PCI/L	15	-0.007 U	-0.002 U	0.075 U	-0.018 U	0.113 U
RADIUM-226	PCI/L	3	-0.051 U	0.114 U	0.0531 U	-0.134 U	-0.052 U
RADIUM-228	PCI/L	5	1 J	0.0786 U	0.265 U	-0.0016 U	0.523 U
TOTAL RADIUM	PCI/L	5	1	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.13 U	-0.052 U	-0.027 U	0.172 U	0.012 U
TECHNETIUM-99	PCI/L	900	15 U	R	-5.55 U	1.12 U	-6.23 U
THORIUM-228	PCI/L	15	-0.093 U	-0.019 U	-0.008 U	0.068 U	0.013 U
THORIUM-230	PCI/L	15	-0.001 U	0 U	R	-0.001 U	-0.011 U
THORIUM-232	PCI/L	15	-0.016 U	0 U	0 U	0 U	0 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	119 U	-108 U	23.8 U	-21.3 U	63.5 U
TOTAL URANIUM	UG/L	30	2.67	353	210	6.34	5.36

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW12B	OW12B	OW13A	OW13A	OW13B
Field Sample Identifier :			OW12B	OW12B	OW13A	OW13A	OW13B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/10/12	10/02/12	04/11/12	10/01/12	04/11/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-1.1 U	Not Anaylzed	-0.168 U	0.035817 U	-0.081 U
PLUTONIUM-238	PCI/L	15	0.042 U	Not Anaylzed	0.017 U	0.005 U	-0.024 U
PLUTONIUM-239/240	PCI/L	15	0.06 U	Not Anaylzed	-0.212 U	R	-0.014 U
RADIUM-226	PCI/L	3	0.204 U	Not Anaylzed	0.127 U	0.544 U	0.388
RADIUM-228	PCI/L	5	-0.202 U	Not Anaylzed	0.604 U	0.824 U	0.452 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Analyzed	Not Detected	Not Detected	0.388
STRONTIUM-90	PCI/L	8	0.822 U	Not Anaylzed	0.054 U	-0.022 U	-0.076 U
TECHNETIUM-99	PCI/L	900	0.555 U	Not Anaylzed	2.4 U	9.07 U	0.585 U
THORIUM-228	PCI/L	15	-0.001 U	Not Anaylzed	-0.079 U	-0.039 U	-0.05 U
THORIUM-230	PCI/L	15	-0.002 U	Not Anaylzed	-0.049 U	-0.025 U	-0.048 U
THORIUM-232	PCI/L	15	-0.033 U	Not Anaylzed	0.052 U	0.002 U	-0.01 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	31.6 U	Not Anaylzed	-61 U	10.6 U	-137 U
TOTAL URANIUM	UG/L	30	36.6	28.4	2.39	2.28	25

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW13B	OW15A	OW15A	OW15B	OW15B
Field Sample Identifier :			OW13B	OW15A	OW15A	OW15B	OW15B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/16/12	10/04/12	04/16/12	10/04/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-1.5043 U	-1.34 U	-0.12703 U	-1.91 U	1.3205 U
PLUTONIUM-238	PCI/L	15	0 U	0.128 U	0.03 U	-0.045 U	0.023 U
PLUTONIUM-239/240	PCI/L	15	-0.013 U	-0.01 U	0.018 U	-0.034 U	0.017 U
RADIUM-226	PCI/L	3	0.163 U	0.0548 U	0.33 U	0.338 U	0.113 U
RADIUM-228	PCI/L	5	0.891 J	0.415 U	0.906 J	-0.197 U	0.309 U
TOTAL RADIUM	PCI/L	5	0.891	Not Detected	0.906	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	-0.166 U	-0.425 U	-0.432 U	-0.484 U	0.237 U
TECHNETIUM-99	PCI/L	900	6.85 U	R	6.35 U	12.3 U	21.7 U
THORIUM-228	PCI/L	15	-0.06 U	0.042 U	-0.047 U	0.006 U	0.014 U
THORIUM-230	PCI/L	15	-0.031 U	-0.058 U	0.018 U	-0.041 U	0.022 U
THORIUM-232	PCI/L	15	-0.01 U	0.006 U	-0.009 U	0 U	0 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-2.67 U	-114 U	-89.1 U	160 U	-36.8 U
TOTAL URANIUM	UG/L	30	25.2	0.426	0.56	11.5	10.8

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW17A	OW17A	OW17B	OW17B	OW18B
Field Sample Identifier :			OW17A	OW17A	OW17B	OW17B	OW18B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/16/12	10/03/12	04/16/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.191 U	-1.7641 U	-0.288 U	-0.11849 U	-0.191 U
PLUTONIUM-238	PCI/L	15	-0.014 U	-0.071 U	0.048 U	-0.003 U	-0.101 U
PLUTONIUM-239/240	PCI/L	15	-0.047 U	0.058 U	0.048 U	-0.002 U	-0.004 U
RADIUM-226	PCI/L	3	-0.06 U	0.083 U	0.108 U	0.26 U	-0.127 U
RADIUM-228	PCI/L	5	0.787 U	1.48 J	0.538 U	0.488 U	0.0065 U
TOTAL RADIUM	PCI/L	5	Not Detected	1.48	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	-0.353 U	0.034 U	0.366 U	-0.154 U	0.643 U
TECHNETIUM-99	PCI/L	900	27.5 U	-2.46 U	6.99 U	3.76 U	6.64 U
THORIUM-228	PCI/L	15	0.044 U	-0.051 U	0.071 U	-0.111 U	-0.098 U
THORIUM-230	PCI/L	15	-0.152 U	-0.008 U	0.009 U	0.018 U	-0.044 U
THORIUM-232	PCI/L	15	0 U	-0.008 U	0 U	0 U	-0.026 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-7.89 U	0 U	-184 U	159 U	3,447
TOTAL URANIUM	UG/L	30	1.5	1.34	6.69	6.8	11.8

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW18B
Field Sample Identifier :			OW18B
Sample Type :			Groundwater
Sample Depth Interval (ft) :			-
Date of Sample :			10/03/12
Parameter	**Units**	**Criteria[1]**	
RADIONUCLIDES			
CESIUM-137	*PCI/L*	200	0.007943 U
PLUTONIUM-238	*PCI/L*	15	0 U
PLUTONIUM-239/240	*PCI/L*	15	0.038 U
RADIUM-226	*PCI/L*	3	-0.112 U
RADIUM-228	*PCI/L*	5	0.753 U
TOTAL RADIUM	*PCI/L*	5	Not Detected
STRONTIUM-90	*PCI/L*	8	-0.609 U
TECHNETIUM-99	*PCI/L*	900	-6.49 U
THORIUM-228	*PCI/L*	15	-0.009 U
THORIUM-230	*PCI/L*	15	0.044 U
THORIUM-232	*PCI/L*	15	0 U
TRITIUM (HYDROGEN-3)	*PCI/L*	20000	139 U
TOTAL URANIUM	*UG/L*	30	13.9

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	302A	302A	411A
Field Sample Identifier :			201A	201A	302A	302A	411A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/11/12	10/04/12	04/18/12	10/04/12	04/17/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	380	44 J	20 J	7 J	7.4 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.67 J	0.82 J	0.52 U
ARSENIC	UG/L	10	2	0.61 U	2.6	2.1	0.87 J
BARIUM	UG/L	1000	28	54	7.7 J	12 J	15 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	230 J	240 J	130 J	190 J	1,200
CADMIUM	UG/L	5	0.27 U	0.27 U	0.38 J	0.33 J	0.27 U
CALCIUM	UG/L	-	180,000	90,000	440,000	420,000	130,000
CHROMIUM, TOTAL	UG/L	50	1.8 J	1.4 J	1.4 J	2.6 J	2 J
COBALT	UG/L	-	0.73 J	0.42 J	0.9 J	1.5 J	0.52 J
COPPER	UG/L	200	2 J	2.3 J	7.1	5.7	1.8 J
IRON	UG/L	300	590	100 J	140	130 J	890
LEAD	UG/L	25	1.1	0.24 U	0.24 U	0.24 U	0.24 U
LITHIUM	UG/L	-	52	37 J	300	330	86
MAGNESIUM	UG/L	35000	150,000	52,000	1,000,000	950,000	210,000
MANGANESE	UG/L	300	48	33	89	500	91
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	5.2 J	2.9 J	18	14	4.8 J
POTASSIUM	UG/L	-	2,300	2,000	7,700	7,900	2,300

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	302A	302A	411A
Field Sample Identifier :			201A	201A	302A	302A	411A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/11/12	10/04/12	04/18/12	10/04/12	04/17/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.5 U	1.5 U	7.1	7.8	1.5 U
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	70,000	56,000	420,000	350,000	76,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	1.2 J	0.57 J	0.74 J	0.49 U	1.1 J
ZINC	UG/L	2000	25 J	19 J	21 J	29 J	15 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			411A	415A	415A	505	A42
Field Sample Identifier :			411A	415A	415A	505	A42
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/04/12	04/11/12	04/16/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	13 J	91	44 J	15 J	8.6 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.56 J	0.68 J	0.52 U
ARSENIC	UG/L	10	16	2.6	3.3	4.1	0.61 U
BARIUM	UG/L	1000	15 J	16 J	15 J	13 J	33
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	540	13,000	17,000	360 J	100 J
CADMIUM	UG/L	5	0.27 U	0.6 J	0.38 J	0.27 U	0.27 U
CALCIUM	UG/L	-	260,000	270,000	210,000	250,000	200,000
CHROMIUM, TOTAL	UG/L	50	1.2 J	1.5 J	1.6 J	1.5 J	1.7 J
COBALT	UG/L	-	2 J	3.3 J	3.5 J	0.4 J	0.51 J
COPPER	UG/L	200	3.8 J	3.5 J	4.4 J	4.5 J	3.4 J
IRON	UG/L	300	5,400	290	860	140	95 U
LEAD	UG/L	25	0.27 J	0.34 J	0.24 U	0.33 J	0.24 U
LITHIUM	UG/L	-	110	76	84	150	36
MAGNESIUM	UG/L	35000	540,000	220,000	210,000	630,000	72,000
MANGANESE	UG/L	300	250	2,000	1,400	7.5	510
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	12	11	8.5 J	8.5 J	5.9 J
POTASSIUM	UG/L	-	6,900	5,900	4,300	5,900	3,800

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			411A	415A	415A	505	A42
Field Sample Identifier :			411A	415A	415A	505	A42
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/12/12	10/04/12	04/11/12	04/16/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	2.4 J	3.6 J	2.3 J	3.2 J	1.5 U
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	280,000	110,000	120,000	330,000	32,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	0.2 J	0.16 U
VANADIUM	UG/L	14	0.74 J	1.3 J	0.72 J	1.4 J	0.98 U
ZINC	UG/L	2000	28 J	38 J	32 J	24 J	16 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A42	A45	A45	A50	A50
Field Sample Identifier :			A42	A45	A45	A50	A50
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/16/12	10/03/12	04/18/12	10/03/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	10 J	7.3 J	52	8.8 J	4.5 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	1 J	1.1 J	0.52 U
ARSENIC	UG/L	10	0.94 J	0.89 J	1.2 J	1.8	1.2 J
BARIUM	UG/L	1000	38	9.5 J	11 J	16 J	15 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	170 J	53 J	78 J	140 J	200 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.3 J	0.27 U	0.27 U
CALCIUM	UG/L	-	200,000	280,000	280,000	150,000	150,000
CHROMIUM, TOTAL	UG/L	50	1.2 J	1.1 J	1.4 J	1.2 J	1.5 J
COBALT	UG/L	-	0.68 J	0.54 J	0.72 J	0.65 J	0.38 J
COPPER	UG/L	200	4 J	1.2 J	4.2 J	4 J	3.9 J
IRON	UG/L	300	100 J	1,400	3,400	100	48 U
LEAD	UG/L	25	0.24 U	0.55 J	7.4	0.33 J	0.24 U
LITHIUM	UG/L	-	36 J	74	73	60	57
MAGNESIUM	UG/L	35000	87,000	130,000	160,000	160,000	190,000
MANGANESE	UG/L	300	1,100	490	460	78	120
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	6.5 J	7.3 J	13	5.4 J	5.7 J
POTASSIUM	UG/L	-	4,900	3,800	4,000	1,700	2,800

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A42	A45	A45	A50	A50
Field Sample Identifier :			A42	A45	A45	A50	A50
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/16/12	10/03/12	04/18/12	10/03/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.7 J	1.5 U	1.6 J	1.5 U	2.6 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	43,000	44,000	55,000	87,000	89,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.49 U	0.98 U	0.58 J	0.49 U	0.75 J
ZINC	UG/L	2000	22 J	18 J	290	15 J	25 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A55	A55	B02W20S	B02W20S	BH49
Field Sample Identifier :			A55	A55	B02W20S	B02W20S	BH49
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/02/12	04/16/12	10/04/12	04/17/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	3.3 J	4.7 J	16 J	11 J	9.8 J
ANTIMONY	UG/L	3	1.8 J	0.76 J	0.52 U	0.95 J	0.62 J
ARSENIC	UG/L	10	1.3 J	1.4 J	0.61 U	2.8	2.5
BARIUM	UG/L	1000	17 J	34	18 J	23 J	42
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	3	0.25 U
BORON	UG/L	1000	320 J	240 J	220 J	370 J	340 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	3.5	0.27 U
CALCIUM	UG/L	-	260,000	460,000	98,000	95,000	68,000
CHROMIUM, TOTAL	UG/L	50	1 J	1.2 J	13 J	5.2 J	2.3 J
COBALT	UG/L	-	0.33 J	0.93 J	0.24 U	3.6 J	0.24 U
COPPER	UG/L	200	3.1 J	3 J	3.9 J	4.2 J	1.7 J
IRON	UG/L	300	63 J	48 U	95 U	110 J	95 U
LEAD	UG/L	25	0.29 J	0.24 U	0.26 J	2.2	0.24 U
LITHIUM	UG/L	-	150	140	67	73	52
MAGNESIUM	UG/L	35000	290,000	120,000	120,000	150,000	79,000
MANGANESE	UG/L	300	5	2.7 J	18	25	37
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	7.4 J	12	10 J	16	2.5 J
POTASSIUM	UG/L	-	17,000	15,000	1,900	2,300	8,600

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A55	A55	B02W20S	B02W20S	BH49
Field Sample Identifier :			A55	A55	B02W20S	B02W20S	BH49
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	10/02/12	04/16/12	10/04/12	04/17/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.5 U	3.4 J	1.5 U	5	2.1 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	240,000	220,000	46,000	53,000	79,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	1.3 J	0.16 U
VANADIUM	UG/L	14	0.49 U	0.49 U	0.98 U	3.6 J	0.98 U
ZINC	UG/L	2000	15 J	21 J	21 J	23 J	23 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			BH49	BH49A	BH49A	MW313	MW313
Field Sample Identifier :			BH49	BH49A	BH49A	MW313	MW313
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/17/12	10/03/12	04/18/12	10/04/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	11 J	6.1 J	7 J	9.1 J	2.9 J
ANTIMONY	UG/L	3	3.4	0.61 J	2.4 J	0.54 J	0.72 J
ARSENIC	UG/L	10	1.2 J	0.64 J	1.2 J	1.4 J	2.3
BARIUM	UG/L	1000	50	17 J	16 J	8.2 J	9.9 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	190 J	170 J	190 J	170 J	270 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.28 J
CALCIUM	UG/L	-	60,000	130,000	130,000	480,000	480,000
CHROMIUM, TOTAL	UG/L	50	1.4 J	1.8 J	1.2 J	1.2 J	1.1 J
COBALT	UG/L	-	0.14 J	0.24 U	1.5 J	2 J	6.2
COPPER	UG/L	200	0.97 J	2 J	2.7 J	1.7 J	1.2 J
IRON	UG/L	300	54 J	95 U	91 J	210	840
LEAD	UG/L	25	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
LITHIUM	UG/L	-	27 J	96	98	190	200
MAGNESIUM	UG/L	35000	55,000	140,000	170,000	490,000	510,000
MANGANESE	UG/L	300	25	4.1 J	430	240	750
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	2.6 J	4 J	5.6 J	17	20
POTASSIUM	UG/L	-	6,000	4,000	3,500	6,000	6,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			BH49	BH49A	BH49A	MW313	MW313
Field Sample Identifier :			BH49	BH49A	BH49A	MW313	MW313
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/17/12	10/03/12	04/18/12	10/04/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.5 U	2.1 J	1.5 J	1.5 U	2.9 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	50,000	51,000	57,000	96,000	110,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.5 J	0.98 U	0.49 U	0.54 J	0.74 J
ZINC	UG/L	2000	22 J	22 J	25 J	19 J	26 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW862	MW862	MW863	MW863	MW921
Field Sample Identifier :			MW862	MW862	MW863	MW863	MW921
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/12/12	10/02/12	04/12/12	10/02/12	04/10/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	32 J	3.9 J	9.8 J	9.3 J	19 J
ANTIMONY	UG/L	3	0.52 U	0.55 J	0.64 J	0.68 J	0.54 J
ARSENIC	UG/L	10	1.6	1.4 J	7.4	4.8	3.9
BARIUM	UG/L	1000	19 J	23 J	11 J	11 J	20 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	150 J	180 J	1,100	960	220 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
CALCIUM	UG/L	-	190,000	180,000	160,000	140,000	170,000
CHROMIUM, TOTAL	UG/L	50	1.3 J	0.85 J	1.4 J	1.2 J	2 J
COBALT	UG/L	-	0.62 J	1.1 J	0.52 J	0.52 J	0.5 J
COPPER	UG/L	200	1.4 J	1.5 J	2.1 J	1.9 J	3.9 J
IRON	UG/L	300	130	98 J	62 J	48 U	82 J
LEAD	UG/L	25	0.24 U	0.24 U	0.3 J	0.24 U	0.66 J
LITHIUM	UG/L	-	79	88	120	120	120
MAGNESIUM	UG/L	35000	200,000	200,000	180,000	200,000	370,000
MANGANESE	UG/L	300	37	400	56	79	46
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	6.5 J	6.5 J	4.9 J	4.5 J	7 J
POTASSIUM	UG/L	-	3,000	4,800	23,000	28,000	5,700

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW862	MW862	MW863	MW863	MW921
Field Sample Identifier :			MW862	MW862	MW863	MW863	MW921
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/12/12	10/02/12	04/12/12	10/02/12	04/10/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	5.6	2.7 J	3.5 J	1.6 J	2.5 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	44,000	61,000	130,000	120,000	210,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	1.1 J	0.68 J	4.1	1.7 J	1.2 J
ZINC	UG/L	2000	13 J	24 J	22 J	22 J	18 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW921	MW922	MW934	MW934	MW935
Field Sample Identifier :			MW921	MW922	MW934	MW934	MW935
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	10/03/12	04/18/12	10/02/12	04/16/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	250	6.8 J	110	1,700	58 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.75 J	0.52 U	0.52 U
ARSENIC	UG/L	10	3	1.3 J	1.3 J	4.7	1 J
BARIUM	UG/L	1000	11 J	11 J	12 J	19 J	8.4 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	230 J	360 J	250 J	230 J	54 J
CADMIUM	UG/L	5	1.3	0.27 U	0.32 J	11	0.27 U
CALCIUM	UG/L	-	250,000	310,000	180,000	250,000	150,000
CHROMIUM, TOTAL	UG/L	50	3.9 J	1.1 J	1.6 J	5.3 J	2.8 J
COBALT	UG/L	-	0.76 J	0.76 J	0.3 J	5.3	0.28 J
COPPER	UG/L	200	5.3	4.4 J	3.2 J	12	3.5 J
IRON	UG/L	300	630	84 J	240	4,900	95 U
LEAD	UG/L	25	0.88 J	0.24 U	0.3 J	5.8	0.24 J
LITHIUM	UG/L	-	190	130	100	110	100
MAGNESIUM	UG/L	35000	600,000	600,000	440,000	440,000	250,000
MANGANESE	UG/L	300	66	56	9.8	510	6.8 J
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	11	9.2 J	6.3 J	11	4.1 J
POTASSIUM	UG/L	-	4,900	7,700	3,400	4,000	1,600

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW921	MW922	MW934	MW934	MW935
Field Sample Identifier :			MW921	MW922	MW934	MW934	MW935
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	10/03/12	04/18/12	10/02/12	04/16/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	8.1	2.6 J	1.5 U	2.4 J	2.5 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.23 J	0.18 U
SODIUM	UG/L	20000	340,000	310,000	220,000	260,000	160,000
THALLIUM	UG/L	2	0.16 U	0.16 U	1.2 J	0.23 J	0.16 U
VANADIUM	UG/L	14	1.3 J	0.82 J	1.2 J	5.1	1.5 J
ZINC	UG/L	2000	28 J	26 J	16 J	44 J	18 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Field Sample Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/04/12	04/18/12	10/02/12	04/18/12	10/02/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	9.6 J	24 J	4.8 J	8 J	13 J
ANTIMONY	UG/L	3	0.68 J	1.4 J	0.52 U	1 J	0.57 J
ARSENIC	UG/L	10	1.2 J	4.6	17	1.1 J	1.4 J
BARIUM	UG/L	1000	9.3 J	11 J	15 J	9 J	12 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	92 J	230 J	310 J	84 J	140 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
CALCIUM	UG/L	-	160,000	110,000	130,000	100,000	100,000
CHROMIUM, TOTAL	UG/L	50	2.3 J	1.8 J	1.3 J	2.7 J	3.4 J
COBALT	UG/L	-	0.53 J	0.32 J	3.5 J	0.99 J	0.88 J
COPPER	UG/L	200	2.6 J	3.8 J	3.6 J	3.6 J	4.5 J
IRON	UG/L	300	88 J	160	2,500	73 J	120 J
LEAD	UG/L	25	0.24 U	0.24 J	0.24 U	0.26 J	0.24 U
LITHIUM	UG/L	-	120	100	100	87	90
MAGNESIUM	UG/L	35000	330,000	180,000	240,000	160,000	170,000
MANGANESE	UG/L	300	26	17	320	1.4 J	13
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	6.4 J	7.9 J	22	5.4 J	7.5 J
POTASSIUM	UG/L	-	2,900	4,000	5,300	2,200	3,100

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Field Sample Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/04/12	04/18/12	10/02/12	04/18/12	10/02/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	3.7 J	1.5 U	1.8 J	1.5 U	4.7 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	150,000	90,000	110,000	97,000	95,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.82 J	0.49 U	0.49 U	0.61 J	1.2 J
ZINC	UG/L	2000	21 J	20 J	29 J	13 J	20 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04A	OW04A	OW04A	OW04B	OW04B
Field Sample Identifier :			OW04A	OW04A	OW04A	OW04B	OW04B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	08/07/12	10/04/12	04/17/12	08/07/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	7.8 J	3.1 J	9.4 J	13 J	7.7 J
ANTIMONY	UG/L	3	1.4 J	1.6	0.58 J	2.8	1.2 J
ARSENIC	UG/L	10	8.1	6.8	6.1	0.76 J	1 J
BARIUM	UG/L	1000	11 J	12 J	12 J	18 J	16 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	460 J	480 J	550	270 J	290 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
CALCIUM	UG/L	-	67,000	61,000	61,000	200,000	180,000
CHROMIUM, TOTAL	UG/L	50	1.5 J	2 J	1.6 J	1.6 J	1.5 J
COBALT	UG/L	-	0.21 J	0.22 J	0.38 J	0.48 J	0.33 J
COPPER	UG/L	200	2.8 J	1.7 J	1.6 J	3.4 J	2.3 J
IRON	UG/L	300	73 J	48 U	66 J	91 J	48 U
LEAD	UG/L	25	0.31 J	0.24 U	0.24 U	0.35 J	0.24 U
LITHIUM	UG/L	-	39	33 J	58	33	36 J
MAGNESIUM	UG/L	35000	84,000	88,000	88,000	130,000	130,000
MANGANESE	UG/L	300	6.5	21	63	35	28
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	10	6.9 J	8.5 J	7.2 J	5.6 J
POTASSIUM	UG/L	-	4,300	4,100	3,800	2,000	2,600

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04A	OW04A	OW04A	OW04B	OW04B
Field Sample Identifier :			OW04A	OW04A	OW04A	OW04B	OW04B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/17/12	08/07/12	10/04/12	04/17/12	08/07/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.5 U	3.2 J	2.7 J	6.6	1.5 U
SILVER	UG/L	50	0.18 U	1.6	0.18 U	0.18 J	1.2
SODIUM	UG/L	20000	110,000	110,000	100,000	55,000	56,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	1.1 J	0.16 U
VANADIUM	UG/L	14	0.91 J	1.4 J	0.57 J	0.49 U	0.62 J
ZINC	UG/L	2000	13 J	14 J	16 J	90	18 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04B	OW05A	OW05A	OW05B	OW05B
Field Sample Identifier :			OW04B	OW05A	OW05A	OW05B	OW05B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/16/12	10/03/12	04/16/12	10/04/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	130	47 J	95	9.3 J	31 J
ANTIMONY	UG/L	3	0.56 J	0.55 J	1.4 J	0.52 U	0.52 U
ARSENIC	UG/L	10	0.72 J	12	17	0.69 J	0.61 U
BARIUM	UG/L	1000	19 J	13 J	13 J	11 J	11 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	340 J	520	490 J	120 J	170 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.82 J
CALCIUM	UG/L	-	160,000	61,000	73,000	120,000	120,000 J
CHROMIUM, TOTAL	UG/L	50	1.9 J	0.94 J	1.5 J	5.2 J	4.9 J
COBALT	UG/L	-	0.54 J	0.16 J	0.4 J	0.26 J	0.42 J
COPPER	UG/L	200	4.2 J	5.2	2.4 J	8.7	6.4
IRON	UG/L	300	1,200	160	960	48 U	110 J
LEAD	UG/L	25	0.51 J	0.34 J	0.3 J	0.34 J	0.32 J
LITHIUM	UG/L	-	41 J	66	72	90	100
MAGNESIUM	UG/L	35000	120,000	97,000	120,000	130,000	170,000
MANGANESE	UG/L	300	110	44	250	1.8 J	5.4
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	8.9 J	3 J	3.1 J	16	15
POTASSIUM	UG/L	-	2,500	6,700	6,100	3,200	3,700

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04B	OW05A	OW05A	OW05B	OW05B
Field Sample Identifier :			OW04B	OW05A	OW05A	OW05B	OW05B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/03/12	04/16/12	10/03/12	04/16/12	10/04/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.5 U	2.3 J	1.8 J	2.6 J	1.5 U
SILVER	UG/L	50	0.21 J	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	49,000	94,000	99,000	62,000	76,000
THALLIUM	UG/L	2	2.5	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.64 J	0.57 J	0.49 U	0.7 J	0.49 U
ZINC	UG/L	2000	24 J	15 J	18 J	16 J	8.3 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW06A	OW06A	OW06B	OW06B	OW07A
Field Sample Identifier :			OW06A	OW06A	OW06B	OW06B	OW07A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/10/12	10/02/12	04/10/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	12 J	24 J	12 J	4.2 J	28 J
ANTIMONY	UG/L	3	0.89 J	0.52 U	0.52 U	0.71 J	0.52 U
ARSENIC	UG/L	10	7.5	4.2	0.61 U	0.61 U	16
BARIUM	UG/L	1000	9.5 J	11 J	14 J	15 J	7.6 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	830	1,000	64 J	76 J	740
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
CALCIUM	UG/L	-	130,000	140,000	140,000	140,000	120,000
CHROMIUM, TOTAL	UG/L	50	2.2 J	1.3 J	16	1.1 J	1.4 J
COBALT	UG/L	-	0.24 J	0.6 J	0.18 J	1.4 J	0.31 J
COPPER	UG/L	200	7.3	3.5 J	5.4	7.1	2.6 J
IRON	UG/L	300	82 J	150 J	64 J	48 U	300
LEAD	UG/L	25	0.3 J	0.42 J	0.43 J	0.3 J	0.39 J
LITHIUM	UG/L	-	85	94	88	84	84
MAGNESIUM	UG/L	35000	150,000	180,000	190,000	190,000	170,000
MANGANESE	UG/L	300	20	140	7.6	120	57
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	13	15	17	15	6.7 J
POTASSIUM	UG/L	-	11,000	11,000	3,200	3,700	8,100

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW06A	OW06A	OW06B	OW06B	OW07A
Field Sample Identifier :			OW06A	OW06A	OW06B	OW06B	OW07A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/10/12	10/02/12	04/10/12	10/02/12	04/11/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.5 U	3.1 J	1.5 U	1.5 U	1.5 U
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	100,000	120,000	69,000	69,000	120,000
THALLIUM	UG/L	2	1.8 J	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.74 J	0.82 J	0.49 U	0.49 U	0.55 J
ZINC	UG/L	2000	17 J	21 J	21 J	25 J	26 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW07A	OW07B	OW11A	OW11A	OW11B
Field Sample Identifier :			OW07A	OW07B	OW11A	OW11A	OW11B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/11/12	04/18/12	10/01/12	04/18/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	4.8 J	27 J	73	3.7 J	110
ANTIMONY	UG/L	3	0.53 J	0.52 U	1.7 J	0.66 J	0.82 J
ARSENIC	UG/L	10	16	1.3 J	6.6	10	2
BARIUM	UG/L	1000	9.3 J	9.9 J	12 J	12 J	8.9 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	1,100	130 J	640	830	130 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
CALCIUM	UG/L	-	130,000	140,000	96,000	110,000	110,000
CHROMIUM, TOTAL	UG/L	50	1.1 J	3.6 J	2.5 J	1.2 J	11
COBALT	UG/L	-	0.53 J	0.2 J	0.34 J	0.71 J	0.23 J
COPPER	UG/L	200	2.3 J	4.1 J	5.4	7.6	2.2 J
IRON	UG/L	300	340	74 J	160	200 J	210
LEAD	UG/L	25	0.24 U	0.9 J	0.28 J	0.24 U	0.33 J
LITHIUM	UG/L	-	87	88	88	74	67
MAGNESIUM	UG/L	35000	160,000	190,000	110,000	140,000	130,000
MANGANESE	UG/L	300	100	5.8	15	110	6.8
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	7.5 J	7.2 J	18	13	12
POTASSIUM	UG/L	-	8,600	2,900	7,400	7,400	2,700

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW07A	OW07B	OW11A	OW11A	OW11B
Field Sample Identifier :			OW07A	OW07B	OW11A	OW11A	OW11B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/11/12	04/18/12	10/01/12	04/18/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	2.3 J	1.5 U	1.5 U	2.2 J	1.5 U
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	130,000	68,000	83,000	90,000	38,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.6 J	0.66 J	0.49 U	0.49 U	0.49 U
ZINC	UG/L	2000	26 J	16 J	21 J	21 J	14 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW11B	OW12A	OW12A	OW12B	OW13A
Field Sample Identifier :			OW11B	OW12A	OW12A	OW12B	OW13A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/10/12	10/02/12	04/10/12	04/11/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	19 J	7.7 J	4.2 J	21 J	23 J
ANTIMONY	UG/L	3	0.56 J	0.54 J	0.52 U	0.85 J	0.52 J
ARSENIC	UG/L	10	0.88 J	16	22	1.6	35
BARIUM	UG/L	1000	13 J	9.7 J	11 J	32	8.7 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	98 J	890	1,000	440 J	900
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
CALCIUM	UG/L	-	150,000	150,000	170,000	88,000	170,000
CHROMIUM, TOTAL	UG/L	50	20	1.4 J	1.1 J	2.5 J	1.3 J
COBALT	UG/L	-	0.28 J	2.4 J	1.3 J	0.33 J	0.28 J
COPPER	UG/L	200	3.8 J	14	5.8	4.3 J	1.9 J
IRON	UG/L	300	48 J	340	900	49 J	930
LEAD	UG/L	25	0.24 U	0.24 U	0.24 U	0.48 J	0.26 J
LITHIUM	UG/L	-	72	78	86	30	97
MAGNESIUM	UG/L	35000	160,000	110,000	140,000	64,000	180,000
MANGANESE	UG/L	300	7.3	77	130	1.1 J	68
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	13	91	24	4.5 J	4.9 J
POTASSIUM	UG/L	-	3,900	11,000	11,000	1,200	11,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW11B	OW12A	OW12A	OW12B	OW13A
Field Sample Identifier :			OW11B	OW12A	OW12A	OW12B	OW13A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/02/12	04/10/12	10/02/12	04/10/12	04/11/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	5.1	1.6 J	2.4 J	1.5 U	1.5 U
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	43,000	97,000	110,000	31,000	130,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.54 J	0.74 J	0.49 U	1.2 J	0.49 U
ZINC	UG/L	2000	24 J	23 J	23 J	16 J	13 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW13A	OW13B	OW13B	OW15A	OW15A
Field Sample Identifier :			OW13A	OW13B	OW13B	OW15A	OW15A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/11/12	10/01/12	04/16/12	10/04/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	12 J	150	71	37 J	8.5 J
ANTIMONY	UG/L	3	0.52 U	0.54 J	0.17 J	0.78 J	0.68 J
ARSENIC	UG/L	10	34	1.9	0.71 J	15	15
BARIUM	UG/L	1000	8.8 J	10 J	11 J	6.2 J	6.6 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	1,100	85 J	130 J	1,100	1,100
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
CALCIUM	UG/L	-	170,000	250,000	240,000	210,000	210,000
CHROMIUM, TOTAL	UG/L	50	1.1 J	3.6 J	1.7 J	0.69 J	1.1 J
COBALT	UG/L	-	0.42 J	0.38 J	0.57 J	0.24 J	0.34 J
COPPER	UG/L	200	1.8 J	3.5 J	4.3 J	3.5 J	2.1 J
IRON	UG/L	300	860	260	130 J	550	690
LEAD	UG/L	25	0.24 U	0.26 J	0.38 J	0.35 J	0.24 U
LITHIUM	UG/L	-	95	85	91	110	120
MAGNESIUM	UG/L	35000	160,000	310,000	320,000	83,000	100,000
MANGANESE	UG/L	300	69	5.1	8.6	160	180
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	5 J	12	11	4.8 J	5.2 J
POTASSIUM	UG/L	-	11,000	2,200	3,700	11,000	11,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW13A	OW13B	OW13B	OW15A	OW15A
Field Sample Identifier :			OW13A	OW13B	OW13B	OW15A	OW15A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/01/12	04/11/12	10/01/12	04/16/12	10/04/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	2.4 J	1.5 U	3 J	2.3 J	4.6 J
SILVER	UG/L	50	0.18 U	0.18 U	0.036 U	0.18 U	0.18 U
SODIUM	UG/L	20000	120,000	76,000	83,000	180,000	200,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.41 J	0.16 U	0.16 U
VANADIUM	UG/L	14	0.49 U	0.73 J	0.83 J	0.49 U	0.49 U
ZINC	UG/L	2000	20 J	17 J	21 J	15 J	28 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW15B	OW15B	OW17A	OW17A	OW17B
Field Sample Identifier :			OW15B	OW15B	OW17A	OW17A	OW17B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/16/12	10/04/12	04/16/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	23 J	12 J	4.8 J	5.9 J	16 J
ANTIMONY	UG/L	3	0.61 J	0.88 J	0.52 U	0.7 J	0.52 U
ARSENIC	UG/L	10	0.64 J	0.83 J	2.2	3.6	0.72 J
BARIUM	UG/L	1000	31	19 J	8.9 J	9.9 J	13 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	70 J	110 J	750	770	110 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
CALCIUM	UG/L	-	110,000	110,000	190,000	190,000	97,000
CHROMIUM, TOTAL	UG/L	50	2.4 J	10	3.1 J	1.8 J	3.5 J
COBALT	UG/L	-	0.17 J	0.29 J	0.41 J	0.41 J	0.24 U
COPPER	UG/L	200	4.8 J	7.7	6.7 J	5.1	2.6 J
IRON	UG/L	300	48 U	95 J	95 U	48 U	95 U
LEAD	UG/L	25	0.26 J	0.48 J	0.27 J	0.24 U	0.24 U
LITHIUM	UG/L	-	34	73	81	60	61
MAGNESIUM	UG/L	35000	61,000	130,000	190,000	220,000	130,000
MANGANESE	UG/L	300	6.7	13	55	85	0.53 U
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	6.8 J	27	16 J	9.5 J	6.8 J
POTASSIUM	UG/L	-	950	3,000	11,000	10,000	2,100

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW15B	OW15B	OW17A	OW17A	OW17B
Field Sample Identifier :			OW15B	OW15B	OW17A	OW17A	OW17B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/16/12	10/04/12	04/16/12	10/03/12	04/16/12
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.5 U	1.5 U	2.3 J	3.7 J	3 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	28,000	70,000	160,000	180,000	61,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.49 U	0.49 U	0.98 U	0.68 J	1 J
ZINC	UG/L	2000	17 J	24 J	15 J	32 J	16 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW17B	OW18B	OW18B
Field Sample Identifier :			OW17B	OW18B	OW18B
Sample Type :			Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/03/12	04/16/12	10/03/12
Parameter	Units	Criteria[1]			
METALS					
ALUMINUM	UG/L	-	8.4 J	8.5 J	10 J
ANTIMONY	UG/L	3	5	0.52 U	0.53 J
ARSENIC	UG/L	10	0.66 J	0.61 U	0.73 J
BARIUM	UG/L	1000	15 J	9.4 J	15 J
BERYLLIUM	UG/L	3	0.25 U	0.25 U	0.25 U
BORON	UG/L	1000	140 J	62 J	110 J
CADMIUM	UG/L	5	0.27 U	0.27 U	0.27 U
CALCIUM	UG/L	-	93,000	90,000	100,000
CHROMIUM, TOTAL	UG/L	50	1.4 J	26	12
COBALT	UG/L	-	0.4 J	0.24 U	0.18 J
COPPER	UG/L	200	2 J	4.5 J	4.1 J
IRON	UG/L	300	69 J	95 U	48 U
LEAD	UG/L	25	0.24 U	0.28 J	0.24 U
LITHIUM	UG/L	-	56	86	88
MAGNESIUM	UG/L	35000	140,000	170,000	220,000
MANGANESE	UG/L	300	40	0.71 J	4.1 J
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	5.4 J	16 J	11
POTASSIUM	UG/L	-	2,400	2,000	4,200

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW17B	OW18B	OW18B
Field Sample Identifier :			OW17B	OW18B	OW18B
Sample Type :			Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/03/12	04/16/12	10/03/12
Parameter	Units	Criteria[1]			
METALS					
SELENIUM	UG/L	10	1.5 J	1.5 J	2.3 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	64,000	94,000	120,000
THALLIUM	UG/L	2	0.16 U	0.16 U	0.16 U
VANADIUM	UG/L	14	0.49 U	0.98 J	0.54 J
ZINC	UG/L	2000	24 J	16 J	22 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	411A	411A	415A
Field Sample Identifier :			201A	201A	411A	411A	415A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/11/12	10/04/12	04/17/12	10/02/12	04/12/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,1,2-TETRACHLOROETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	130 U
1,1,2-TRICHLOROETHANE	UG/L	1	0.27 U	0.27 U	0.27 U	0.27 U	130 U
1,1-DICHLOROETHANE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	120 U
1,1-DICHLOROETHENE	UG/L	5	0.19 U	0.19 U	0.19 U	0.19 U	96 U
1,2,3-TRICHLOROBENZENE	UG/L	5	0.38 U	0.38 U	0.38 U	0.38 U	190 U
1,2,4-TRICHLOROBENZENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	84 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	0.25 U	0.25 U	0.25 U	0.25 U	120 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	0.006	0.18 U	0.18 U	0.18 U	0.18 U	90 U
1,2-DICHLOROBENZENE	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	130 U
1,2-DICHLOROETHANE	UG/L	0.6	0.19 U	0.19 U	0.19 U	0.19 U	94 U
1,2-DICHLOROPROPANE	UG/L	1	0.35 U	0.35 U	0.35 U	0.35 U	170 U
1,3-DICHLOROBENZENE	UG/L	3	0.21 U	0.21 U	0.21 U	0.21 U	110 U
1,4-DICHLOROBENZENE	UG/L	3	0.18 U	0.18 U	0.18 U	0.18 U	92 U
2-HEXANONE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	100 U
ACETONE	UG/L	50	0.44 U	1.6 J	0.44 U	0.44 U	220 U
BENZENE	UG/L	1	0.2 U	0.2 U	0.2 U	0.2 U	98 U
BROMOCHLOROMETHANE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	98 U
BROMODICHLOROMETHANE	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	92 U
BROMOFORM	UG/L	50	0.33 U	0.33 U	0.33 U	0.33 U	170 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	411A	411A	415A
Field Sample Identifier :			201A	201A	411A	411A	415A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/11/12	10/04/12	04/17/12	10/02/12	04/12/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U	1.2 U	590 U
CARBON DISULFIDE	UG/L	60	0.94 J	0.15 U	0.15 U	0.15 U	76 U
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U	0.36 U	180 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	110 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U	0.42 U	210 U
CHLOROFORM	UG/L	7	0.19 U	0.19 U	0.19 U	0.19 U	94 U
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	110 U
CIS-1,2-DICHLOROETHYLENE	UG/L	5	0.17 U	0.22 J	0.17 U	0.17 U	7,400
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U	0.17 U	84 U
CYCLOHEXANE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	100 U
ETHYLBENZENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	98 U
ISOPROPYLBENZENE (CUMENE)	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	100 U
METHYL ACETATE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	0.28 U	0.28 U	0.28 U	0.28 U	140 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	-	0.4 U	0.4 U	0.4 U	0.4 U	200 U
METHYLCYCLOHEXANE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
METHYLENE CHLORIDE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	100 U
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	100 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	411A	411A	415A
Field Sample Identifier :			201A	201A	411A	411A	415A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/11/12	10/04/12	04/17/12	10/02/12	04/12/12
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
TERT-BUTYL METHYL ETHER	UG/L	10	0.17 U	0.17 U	0.17 U	0.17 U	86 U
TETRACHLOROETHYLENE(PCE)	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	48,000
TOLUENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	98 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	0.18 U	0.2 J	0.18 U	0.18 U	190 J
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	0.2 U	0.2 U	0.2 U	0.2 U	100 U
TRICHLOROETHANE	UG/L	5	0.16 U	0.16 U	0.16 U	0.16 U	80 U
TRICHLOROETHYLENE (TCE)	UG/L	5	0.27 U	0.27 U	0.29 J	0.27 U	9,400
TRICHLOROFLUOROMETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	130 U
VINYL CHLORIDE	UG/L	2	0.24 U	0.24 U	0.24 U	0.24 U	460 J
XYLENES, TOTAL	UG/L	-	0.66 U	0.66 U	0.66 U	0.66 U	330 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			415A	MW934	MW934
Field Sample Identifier :			415A	MW934	MW934
Sample Type :			Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/04/12	04/18/12	10/02/12
Parameter	**Units**	**Criteria[1]**			
VOLATILE ORGANIC ANALYSES					
1,1,1,2-TETRACHLOROETHANE	*UG/L*	5	0.26 U	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	*UG/L*	1	0.27 U	0.27 U	0.27 U
1,1-DICHLOROETHANE	*UG/L*	5	0.48 J	0.25 U	0.25 U
1,1-DICHLOROETHENE	*UG/L*	5	21	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	*UG/L*	5	0.38 U	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	*UG/L*	5	0.17 U	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	*UG/L*	0.04	0.25 U	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	*UG/L*	0.006	0.18 U	0.18 U	0.18 U
1,2-DICHLOROBENZENE	*UG/L*	3	0.25 U	0.25 U	0.25 U
1,2-DICHLOROETHANE	*UG/L*	0.6	0.19 U	0.19 U	0.19 U
1,2-DICHLOROPROPANE	*UG/L*	1	0.35 U	0.35 U	0.35 U
1,3-DICHLOROBENZENE	*UG/L*	3	0.21 U	0.21 U	0.21 U
1,4-DICHLOROBENZENE	*UG/L*	3	0.18 U	0.18 U	0.18 U
2-HEXANONE	*UG/L*	50	0.21 U	0.21 U	0.21 U
ACETONE	*UG/L*	50	7.3 J	0.44 U	1.1 J
BENZENE	*UG/L*	1	1.3	0.2 U	0.2 U
BROMOCHLOROMETHANE	*UG/L*	5	0.2 U	0.2 U	0.2 U
BROMODICHLOROMETHANE	*UG/L*	50	0.18 U	0.18 U	0.18 U
BROMOFORM	*UG/L*	50	0.33 U	0.33 U	0.33 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			415A	MW934	MW934
Field Sample Identifier :			415A	MW934	MW934
Sample Type :			Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/04/12	04/18/12	10/02/12
Parameter	Units	Criteria[1]			
VOLATILE ORGANIC ANALYSES					
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U
CARBON DISULFIDE	UG/L	60	0.15 U	0.15 U	0.15 U
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U
CHLOROFORM	UG/L	7	9.4 U	53	1,400
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.88 J
CIS-1,2-DICHLOROETHYLENE	UG/L	5	8,500	0.17 U	0.17 U
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U
CYCLOHEXANE	UG/L	-	1 U	Not Anaylzed	1 U
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U
ETHYLBENZENE	UG/L	5	0.28 J	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	UG/L	5	0.21 U	0.21 U	0.21 U
METHYL ACETATE	UG/L	-	1 U	Not Anaylzed	1 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	0.28 U	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	-	1.5 J	0.4 U	0.4 U
METHYLCYCLOHEXANE	UG/L	-	1 U	Not Anaylzed	1 U
METHYLENE CHLORIDE	UG/L	5	R	0.2 U	11
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			415A	MW934	MW934
Field Sample Identifier :			415A	MW934	MW934
Sample Type :			Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/04/12	04/18/12	10/02/12
Parameter	**Units**	**Criteria[1]**			
VOLATILE ORGANIC ANALYSES					
TERT-BUTYL METHYL ETHER	*UG/L*	10	0.17 U	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	*UG/L*	5	50,000	0.26 U	0.57 J
TOLUENE	*UG/L*	5	0.91 J	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	*UG/L*	5	150	0.18 U	0.18 U
TRANS-1,3-DICHLOROPROPENE	*UG/L*	0.4	0.2 U	0.2 U	0.2 U
TRICHLOROETHANE	*UG/L*	5	0.16 U	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	*UG/L*	5	13,000	0.27 U	0.27 U
TRICHLOROFLUOROMETHANE	*UG/L*	5	0.26 U	0.26 U	0.26 U
VINYL CHLORIDE	*UG/L*	2	650	0.24 U	0.24 U
XYLENES, TOTAL	*UG/L*	-	1.2 J	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

APPENDIX A

2012 Calculation of External Gamma Radiation Dose Rates for Niagara Falls Storage Site

APPENDIX A: NFSS CY2012 ENVIRONMENTAL SURVEILLANCE TECHNICAL MEMORANDUM

CY2012 CALCULATION OF EXTERNAL GAMMA RADIATION DOSE RATES FOR NIAGARA FALLS STORAGE SITE (NFSS)

LEWISTON, NEW YORK

October 2013

US Army Corps of Engineers®
Buffalo District

BUILDING STRONG®

TABLE OF CONTENTS

1.0 PURPOSE 1

2.0 ASSUMPTIONS 1

3.0 OSL DATA 1

4.0 ASSESSMENT METHODOLOGY AND RESULTS 2
4.1 NEAREST RESIDENT 2
4.2 NEAREST OFF-SITE WORKER 3

5.0 REFERENCES 3

1.0 PURPOSE

This calculation estimates the external gamma radiation dose from the Niagara Falls Storage Site (NFSS), Lewiston, New York (see Figure 1, Appendix B), during calendar year 2012 (CY2012). Hypothetical doses from external gamma radiation to members of the public are calculated from dose measurements using Landauer "Luxel" Optically Stimulated Luminescence dosimeters (OSLs) located at the perimeters of the NFSS and the Interim Waste Containment Structure (IWCS) (see Figure 2, Appendix B). OSLs replaced thermoluminescent dosimeters (TLDs) in the environmental program beginning in 2008.

2.0 ASSUMPTIONS

Doses were calculated for off-site receptors based on these locations for off-site receptors based on the canvas of receptors in CY2006. The hypothetical doses for the nearest resident and off-site worker are reported. The modeling approach described below is considered to be protective of human health (conservative) in calculating hypothetical dose to receptors. The shielding effect of the air has not been included in the calculations. Calculations for the hypothetical annual external gamma radiation doses to the nearest resident and nearest off-site worker used the following assumptions:

Distance from each OSL above the source (the ground) is 3 feet (ft),
Distance from the OSLs to the nearest resident is 500 ft (perpendicular to the western OSL line),
Distance from the OSLs to the nearest off-site worker is 1,020 ft (perpendicular to the eastern OSL line),
Length of the western OSL monitoring line (western perimeter fence) is 2,766 ft,
Length of the eastern OSL monitoring line (east of Campbell Street) is 2,700 ft.

3.0 OSL DATA

At NFSS, OSLs are used to measure gamma radiation from the site and from sources of background radiation. Natural sources of background radiation include cosmic radiation and terrestrial radiation sources. In the United States, the annual average (per capita) cosmic and terrestrial radiation doses are 34 millirem per year (mrem/yr) and 22 mrem/yr, respectively (NCRP Report 160). Annual doses due to background at NFSS are measured at background locations using OSLs. Background dose for the same period of exposure is subtracted from site dose values to estimate the net dose from NFSS. OSLs are located at the facility perimeter and at the perimeter of the IWCS. The OSLs are placed at approximately 3 ft [1.6 meters (m)] above the ground surface. The OSLs measure approximately six-month intervals and are analyzed at an off-site vendor.

Seventeen locations around the perimeter of the site and seven locations around the IWCS were monitored in CY2012 (see Figure 2, Appendix B). In addition to these locations, there were three background locations (Figure 1, Appendix B). Two environmental OSLs were placed at each monitoring location. The environmental program utilizes two OSLs at each monitoring location for each monitoring period as a quality control check. In addition, if a measurement result is rejected or a OSL is lost, the duplicate reading is assumed for that monitoring period. For CY2012 two OSL co-located badge results were used for each location.

OSL monitoring data for CY2012 are presented in Table 4 in the Tables section. A time-weighted or normalized annual dose is calculated that accounts for exposure periods having different integration times (a different number of measurement days). Negative net values, when they occur, are retained for calculational purposes.

4.0 ASSESSMENT METHODOLOGY AND RESULTS

Gamma radiation measured at the perimeter fence line represents the dose for full-time occupancy i.e. 24 hours/day and 365 days/year (366 days for a leap year). Dose to an off-site receptor is significantly affected by proximity to the source and the amount of time spent at the receptor location. The estimate of dose to an off-site worker therefore uses a correction factor for occupancy assuming 2000 hours worked per year. The estimate of dose to an off-site resident assumes a full-time occupancy at home. The average net dose rate for CY 2012 at the site perimeter by direction is calculated to be:

Direction	OSL Locations	Calculated Average Net Dose Rate (mrem/year)
North Perimeter	1, 11, 12, 60, 65, 122	8.25
East Perimeter	1,28,123	8.83
South Perimeter	7, 28, 29, 45	9.00
West Perimeter	8, 10, 11,13,15,29,36	7.71

4.1 NEAREST RESIDENT

The dose calculation for the nearest resident uses the line of OSLs along the western perimeter fence. The OSLs along this side of the facility include NFSS perimeter fence monitoring locations 11, 13, 15, 29, and 36, and WCS perimeter fence monitoring locations 8 and 10. The two WCS locations are located close to the western NFSS perimeter fence. These OSL locations are shown in Appendix B, Figure 2. Net dose rates (corrected for background) for these OSLs are summed and divided by the total number of observations (14 for CY2012). This average value represents the annual dose at the site perimeter (D1 = 7.71 mrem for CY2012). The dose contribution to this resident from the southern exposure is insignificant compared to the exposure from the western line source. The western site perimeter dose is then used in the following equation for a line source:

$$D_2 = D_1 * h_1/h_2 * (\text{Arc Tan } (L/h_2) / \text{Arc Tan } (L/h_1))$$

Where:
D_2 = dose calculated at the receptor location from the line source
D_1 = dose at the site perimeter as described above
h_1 = the distance of the OSLs from the source (3 ft)
h_2 = the distance of the resident from the fence line (500 ft)
L = half the length of line of OSLs measuring the line source (1,383 ft)

Nearest Resident Dose Calculation (Resident southwest of NFSS)

NFSS Perimeter Monitoring Locations 11, 13, 15, 29, and 36 and IWCS Perimeter Monitoring Locations 8 and 10

Where:
h_1 = 3 feet distance of OSL from the source
h_2 = 500 feet distance of resident from the western fence line.
L = 1,383 feet half the length of the western line source
D_1 = 7.71 mrem average annual dose at the OSL monitoring locations

D_2 = 0.036 mrem resident annual dose at 500 feet from the western fence-line.

The hypothetical dose to the nearest resident is 3.6 E-02 (or 0.036) mrem for calendar year 2012.

4.2 NEAREST OFF-SITE WORKER

The dose to the nearest off-site worker uses, the line of OSLs, closest to the eastern perimeter fence (Castle Garden Road). The OSLs used include monitoring locations 1, 28, and 123. These OSLs are located along an interior fence east of Campbell Street. Their locations are shown in Figure 2, Appendix B. There are no WCS perimeter fence monitoring locations close to those along the line east of Campbell Street; therefore, none are included in the dose calculations. Net dose rates (corrected for background) for OSL monitoring locations 1, 28, and 123 are summed and divided by the total number observations (6 for CY2012). This average represents the annual dose at the site perimeter (D1 = 8.83 mrem for CY2012).

Nearest Off-Site Worker Dose Calculations (Worker east of NFSS)

NFSS Perimeter Monitoring Locations 1, 28, 123
h_1 = 3 feet distance of OSL from the source
h_2 = 1,020 feet distance of off-site worker from the OSLs
L = 1,350 feet half the length of the eastern line source
D_1 = 8.83 mrem average annual dose at the OSL monitoring locations
D_2 = 0.003 mrem off-site worker annual dose at 1,020 feet from the western fence line.

The hypothetical dose to the nearest off-site worker is 3.03 E-03 (or 0.00349) mrem for calendar year 2012. This was calculated using the equation above and a correction factor for off-site worker occupancy of 2000/8760 hours.

5.0 REFERENCES

Bechtel National, Inc. (BNI), 1997. "1996 Public External Gamma Dose," 14501-158-CV-031, Rev. 0, Oak Ridge, TN.

National Council on Radiation Protection and Measurements (NCRP), 2009. “NCRP Report No. 160, Ionizing Radiation Exposure of the Population of the United States,” ISBN-13: 978-0-929600-98-7, Bethesda, MD.

APPENDIX B

FUSRAP 2012 NESHAP Annual Report for NFSS

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO NY 14207-3199

REPLY TO ATTENTION OF:

Special Projects Branch June 20, 2013

SUBJECT: Niagara Falls Storage Site (NFSS) 2012 NESHAP Report

[redacted]
Radiation and Indoor Air Branch
Environmental Protection Agency, Region II
290 Broadway
New York, New York 10007

Dear [redacted]:

Enclosed please find the 2012 National Emission Standards for Hazardous Air Pollutants (NESHAPs) report for the Niagara Falls Storage Site (NFSS). This report, as it has in the past, will be included in the Corps *FUSRAP Niagara Falls Storage Site 2012 Environmental Surveillance Technical Memorandum*, which is currently under development. In summary the Corps finds that the NFSS is in compliance with 40 CFR 61, Subpart H and Subpart Q.

Compliance with 40 CFR 61, Subpart H is determined by use of USEPA approved code CAP88-PC Version 3.0. The CAP88-PC hypothetical annual maximum dose to an off-site:

Resident:	5.0 E-04 mrem
Resident Farmer:	3.9 E-04 mrem

The hypothetical annual doses to the nearest off-site worker and school corrected for 2,000 hr of exposure per year are:

Off-site worker:	4.8 E-04 mrem
School:	3.2 E-04 mrem

The hypothetical annual doses to the maximally exposed off-site individual (MEOSI) is therefore 5.0 E-04 mrem to a resident.

The CAP88-PC hypothetical annual effective dose for the population within 80 km of the facility is:

Population:	1.4 E-02 person-rem

Compliance with 40 CFR 61, Subpart Q is demonstrated by the measurement of radon-222 (radon flux). Radon-222 flux at the NFSS site was measured using 180 10-inch diameter activated carbon canisters placed at 15-meter intervals across the Interim Waste Containment

SUBJECT:Niagara Falls Storage Site (NFSS) 2012 NESHAP Report

Structure (IWCS) and sealed to the surface for a 24-hour exposure period (July 30-31, 2012). Individual and average (0.04245 pCi/m^2/sec) measurements were well below the NESHAPs standard for radon flux of 20 pCi/m^2/sec, with results ranging from non-detect to 0.99170 pCi/m^2/s. These results are consistent with radon flux measured in previous years. The results do not exceed the established standard specified in 40 CFR 61, Subpart Q.

[redacted] is the technical point of contact for these results. He can be reached at [redacted] if you have any questions.

Sincerely,

[redacted]
Environmental Project Management Team Leader

Enclosure: FUSRAP CY2012 NESHAP ANNUAL REPORT FOR NIAGARA FALLS STORAGE SITE (NFSS)

FUSRAP CY2012 NESHAP ANNUAL REPORT FOR NIAGARA FALLS STORAGE SITE (NFSS)

LEWISTON, NEW YORK

JUNE 2013

U.S. Army Corps of Engineers
Buffalo District Office
Formerly Utilized Sites Remedial Action Program

TABLE OF CONTENTS

1.0 INTRODUCTION **1**

1.1 SITE DESCRIPTION 1
1.2 SOURCE DESCRIPTION 1

2.0 REGULATORY STANDARDS **2**

2.1 40 CFR 61, SUBPART H 2
2.2 40 CFR 61, SUBPART Q 2

3.0 AIR EMISSION DATA **2**

4.0 DOSE ASSESSMENTS **3**

4.1 MODEL SOURCE DESCRIPTION 3
4.2 DESCRIPTION OF DOSE MODEL 4
4.3 COMPLIANCE ASSESSMENT 4

5.0 SUPPLEMENTAL INFORMATION **5**

5.1 POPULATION DOSE 5
5.2 RADON-222 FLUX 5
5.3 NON-APPLICABILITY 6

6.0 REFERENCES **6**

LIST OF APPENDICES

Attachment A: Annual Wind Erosion Emission Calculation
Attachment B: Source Term Calculations and Annual Air Releases
Attachment C: CAP88-PC Reports – Individual
Attachment D: CAP88-PC Reports – Population
Attachment E: National Climatic Data Center, Niagara Falls, New York
Attachment F: 2012 Niagara Falls Storage Site Radon Flux Results and Site Map

ACRONYMS AND ABBREVIATIONS

BNI	Bechtel National, Inc.
CAP88-PC Ver 3	Clean Air Act Assessment Package-1988, Version 3.0
CFR	Code of Federal Regulations
E_w	annual wind erosion emission
FUSRAP	Formerly Utilized Sites Remedial Action Program
ICRP	International Commission on Radiological Protection
IWCS	Interim Waste Containment Structure
m^2	square meter(s)
MEI	maximally exposed individual
ML	Modern Landfill
mph	miles per hour
NOAA	National Oceanic and Atmospheric Administration
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFIA	Niagara Falls International Airport
NFSS	Niagara Falls Storage Site
USAEC	United States Atomic Energy Commission
USACE	United States Army Corps of Engineers
UCL	upper confidence limit
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

In 1974, the United States Atomic Energy Commission (USAEC), a predecessor to the United States Department of Energy (USDOE), instituted the Formerly Utilized Sites Remedial Action Program (FUSRAP). This program is now managed by United States Army Corps of Engineers (USACE) to identify and clean up, or otherwise control sites where residual radioactivity remains from the early years of the nation's atomic energy program or from commercial operations causing conditions that Congress has authorized USACE to remedy under FUSRAP. The Niagara Falls Storage Site (NFSS) is a federally-owned storage site managed under FUSRAP. In October 1997, Congress transferred the responsibility for FUSRAP to USACE.

1.1 SITE DESCRIPTION

The Niagara Falls Storage Site (NFSS) is located in the Town of Lewiston in northwestern New York State, northeast of Niagara Falls and south of Lake Ontario (page F-1, Attachment F). NFSS is approximately 77 hectare (~191 acre) site which includes: one metal storage building, one office building (Building 429), an equipment shed, and a 4 hectare (9.9 acre) interim waste containment structure (IWCS). The property is fenced, and public access is restricted.

Land use in the region is primarily rural; however, the site is bordered by a chemical waste disposal facility on the north, a solid waste disposal facility on the east and south, and a Niagara Mohawk Power Corporation right-of-way on the west. The nearest residential areas are approximately 1.1-km southwest of the site; the residences are primarily single-family dwellings.

1.2 SOURCE DESCRIPTION

Beginning in 1944, NFSS was used as a storage facility for radioactive residues and wastes. The residues and wastes are the process by-products of uranium extraction from pitchblende (uranium ore). Waste was also generated from remediation of buildings and process equipment used in the uranium extraction process. The residues originated at other sites and were transferred to NFSS for storage in buildings, on-site pits, and surface piles. Table 1 includes a brief history and description of the major radioactive residues and wastes transferred to NFSS. From 1953 to 1959 and 1965 to 1971, the former Building 401 was used as a boron-10 isotope separation plant.

Table 1. History and Description of Wastes Transferred to NFSS

Material	Description	Transferred to NFSS
L-50	Low-activity radioactive residues from the processing of low-grade uranium ores at Linde Air Products, Tonawanda, New York.	1944
R-10	Low-activity radioactive residues from the processing of low-grade uranium ores at Linde Air Products, Tonawanda, New York.	1944
F-32	Low-activity radioactive residues from the processing of high-grade uranium ores at Middlesex, New Jersey.	1944 to early 1950
L-30	Low-activity radioactive residues from the processing of low-grade uranium ores at Linde Air Products, Tonawanda, New York.	1945
K-65	High-activity radioactive residues from the processing of high-grade uranium ores at Mallinckrodt Chemical Works, St. Louis, Missouri.	1949
Middlesex Sands	Sand and abraded material from the sandblasting of buildings and process equipment where the F-32 residue was generated at Middlesex Metal Refinement Plant, Middlesex, New Jersey.	1950

Since 1971, activities at NFSS have been confined to residue and waste storage and remediation. On-site and off-site areas with residual radioactivity exceeding USDOE guidelines were remediated between 1981 and 1992. The materials generated during remedial actions (approximately 195,000 m^3) are encapsulated in the IWCS, which is specifically designed to provide interim storage of the materials. Remedial investigation began at the end of 1999 to determine if any areas of the site contained radioactive or chemical contaminants at levels that could pose an unacceptable risk to human health and the environment. The CERCLA remedial investigation of the NFSS was completed in 2007. NFSS is currently in the feasibility study phase of the CERCLA process for the IWCS Operable Unit.

2.0 REGULATORY STANDARDS

The United States Environmental Protection Agency's (USEPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) are compliance standards that require annual reporting of emissions of radionuclides and radon gas from operations at nuclear facilities.

2.1 40 CFR 61, SUBPART H

40 CFR 61, Subpart H provides standards for reporting emissions of radionuclides (excluding radon-222 and radon-220) into the air from USDOE facilities. Although control and maintenance of the site currently rests with USACE, responsibility for NFSS will return to USDOE following completion of remedial actions. This regulation therefore provides an appropriate standard for NFSS. Compliance with Subpart H is verified by applying the USEPA approved code, CAP88-PC. CAP88-PC Version 3.0 (USEPA 2006, revised 2013) was used for this year's calculation. The applicable regulation, 40 CFR 61.92 limits exposure of the public to an annual effective dose equivalent of 10 mrem from radioactive emissions.

2.2 40 CFR 61, SUBPART Q

40 CFR 61, Subpart Q applies to storage and disposal facilities for radium-containing material that emits radon-222 into air. NFSS is specifically identified as one such facility in this subpart (in 40 CFR 61.190). Compliance with Subpart Q is verified by annual monitoring of the IWCS for radon-222 flux. The Subpart Q radon-222 emission limit is 20 $pCi/m^2/s$.

3.0 AIR EMISSION DATA

Table 2 summarizes the sources of air emissions. Attachment A contains the annual wind erosion emission (E_w) calculation. Attachment B contains the radioactive source term calculations and annual air releases.

These calculations use the USEPA air pollution emission factor methodology (AP-42) to estimate the radioactive release from wind erosion, which is then used as the source term in the Clean Air Act Assessment Package (CAP88-PC) model to estimate airborne doses to hypothetically exposed individuals. The annual wind erosion emission estimate uses the most current soil data from the NFSS RI sampling Phases I, II, and III. A 95% upper confidence limit (UCL) without the subtraction of background radioactivity was calculated for each soil nuclide of concern and was used as the soil concentration for the source term estimate. The area of the entire NFSS was assumed to be uniformly contaminated and to contribute to the source term.

Table 2. Air Emission Data - NFSS

Point Sources	Type Control	Efficiency	Distance to Hypothetical Exposed Individual
none	not applicable	not applicable	not applicable
Area (Non-Point) Sources	**Type Control**	**Efficiency**	**Distance and Direction from Center of Site to Hypothetical Exposed Individual**
in situ soil –area source	vegetative cover	90 percent[a]	533 m SE Modern Scale-house Worker 783 m S Greenhouse Worker 914 m SSW Resident 1105 m S Resident (farm) 1250 m WSW Resident 1486 m ESE Resident 2499 m W School 2629 m WNW School
Group Sources	**Type Control**	**Efficiency**	**Distance to Hypothetical Exposed Individual**
none	not applicable	not applicable	not applicable

[a] This is the fraction of vegetative cover used to correct emissions (Attachments A,B).

4.0 DOSE ASSESSMENTS

4.1 MODEL SOURCE DESCRIPTION

To determine the dose from airborne particulates potentially released from NFSS during CY2012, the annual wind erosion emission, E_w (Attachment A) is calculated using local climatological data (Attachment F) from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center for the Niagara Falls International Airport (NFIA) in Niagara Falls, NY. E_w is calculated using the USEPA AP-42 methodology for "fugitive emissions" from an "area source" that uses the "fastest mile" wind speed data from local climatological data reports. E_w, in grams emitted, is then applied to the soil nuclide concentration to estimate the source term or annual emissions for each radionuclide. The soil concentration was developed from sample data compiled during Phases I, II, and III of the Remedial Investigation for soil contamination (Attachment B). Contributions from radon gas, in accordance with regulatory guidance, are not considered in this calculation. Annual estimated emissions for each radionuclide were input into the USEPA's CAP88-PC, Version 3.0 (updated 2013) code to calculate hypothetical receptor doses. The model estimates resultant doses from airborne particulates to hypothetical individuals at the distances to the nearest residence, commercial/industrial facility, school, and farm as measured from a central location on-site. Hypothetical doses are then corrected for occupancy. Commercial/industrial facility and school occupancy is assumed to be 40 hr/week for 50 weeks/yr. Residential and farm occupancy is assumed to be full-time/continuous for 24 hr/day for 365 days/yr. The hypothetical individual receiving the higher of these calculated doses is then identified as the maximally exposed individual (MEI) for airborne particulate dose.

4.2 DESCRIPTION OF DOSE MODEL

4.2.1 CAP88-PC Computer Program

The CAP88-PC model is a set of computer programs, databases, and associated utility programs that estimate the dose and risk from airborne radioactivity emissions. The USEPA NESHAP compliance procedures for airborne radioactivity emissions at USDOE facilities (40 CFR 61.93(a)) require the use of the CAP88-PC model, or other approved procedures to calculate effective dose equivalents to members of the public.

CAP88-PC uses a modified Gaussian plume equation to estimate the average dispersion of radionuclides released from a site. Assessments are performed for a circular grid of distances and directions for a radius of 80 km (50 miles) around the facility. Agricultural arrays for EPA food source scenarios for vegetation, milk and meat, and for milk cattle and beef cattle density and land fraction cultivated are generated automatically. Dose and risk factors for CAP88-PC, Version 3.0 are from Federal Guidance Report 13 and are based on the methods detailed in International Commission on Radiological Protection (ICRP) 72 (ICRP72). The dose calculations presented in this document used the default values for nuclide lung clearance type. These defaults correspond to the recommended values from FGR 13. Deposition velocity and scavenging coefficient are calculated by the code in accordance with USEPA policy. In the CAP88 model nuclides are depleted from the plume by precipitation scavenging, dry deposition and radioactive decay. The default scavenging coefficient is calculated as a function of annual precipitation. The program calculates the effective dose equivalents received by receptors by combining the inhalation and ingestion intake rates and the air and ground surface concentrations using the appropriate dose conversion factors.

4.2.2 CAP88-PC Input

Input parameters for CAP88 include:

Radionuclide emissions (Attachment B),
Weather data (average annual temperature, total annual precipitation) (Attachment E),
Emission source height and area (Section 4.3), and
Distance to nearest resident, off-site worker, school, and farm (Section 4.3).

4.2.3 CAP88-PC Output

The "Dose and Risk Equivalent Summaries" from CAP88-PC contains the resulting effective dose equivalents for each modeled scenario. The effective dose equivalent summary contains results for 16 compass directions around the facility for the nearest resident, off-site worker, school, and farm. CAP88-PC individual receptor and population output summaries are located in Attachment C and D, respectively.

4.3 COMPLIANCE ASSESSMENT

The released activity data from Attachment B is entered into the CAP88-PC modeling program to derive the hypothetical dose to the defined receptors. To derive the dose to the MEI, the CAP88-PC model must have weather data for the appropriate year, information on the emission source, and the distances and directions to the nearest residence, off-site worker, school, and farm. At the time of the writing of this report the Annual Climatological Summary for 2012 was incomplete for December. The monthly LCD for December 2012 was used to

complete the yearly data for mean temperature and total precipitation. The following CY2012 meteorological data were entered into CAP88-PC (see Attachment E):

Average temperature	10.72 °C (51.3 °F) NFIA
Precipitation,	79.58 cm (31.33 inches) ML
Mixing height	1,000 m

The following emission source and nearest receptor distances and direction information were also entered into the program:

Source height	0 m
Source area	780,000 m^2
Resident	914 m SSW
Resident (farm)	1105 m S
Resident	1250 m WSW
Resident	1486 m ESE
Off-site worker	533 m SE
Off-site worker	783 m S
School (building)	2499 m W
School (building)	2629 m WNW

The CAP88-PC annual hypothetical dose to the nearest resident, off-site worker, school, and farm at the corresponding directions and distances taken from page six of the "Dose and Risk Equivalent Summaries" document for individual modeling (Attachment C) are:

Resident	5.0 E-04 mrem, SSW @ 914 m
Off-site worker	2.1 E-03 mrem, SE @ 533 m
School	2.0 E-04 mrem, W @ 2499 m
Farm	3.9 E-04 mrem, S @ 1105 m

The hypothetical doses to the nearest off-site worker and school corrected for an assumed 2,000 hr of exposure per year are:

Off-site worker	4.8 E-04 mrem
School	3.2 E-04 mrem

5.0 SUPPLEMENTAL INFORMATION

5.1 POPULATION DOSE

The CAP88-PC model was also used to estimate the hypothetical airborne particulate dose to the population within 80 km of the site. Population data taken from year 2000 census data for New York State and 2001 census data for Ontario, Canada was used to create a population file for CAP88-PC. The effective dose equivalent for the collective population in person-rem/yr is from the CAP88-PC "Dose and Risk Equivalent Summaries" report.

The CAP88-PC annual effective dose for the population within 80 km of the facility (Attachment D) is:

Population: 1.4 E-02 person-rem

5.2 RADON-222 FLUX

Measurement of radon-222 flux provides an indication of the rate of radon-222 emission from a surface. Radon-222 flux is measured with activated charcoal canisters placed at 15-m

intervals across the surface of the IWCS for a 24-hr exposure period. Measurements for CY2012 are presented in the radon flux results with measurement locations (site map) in Attachment F.

Measured results for 2012 ranged from non-detect to 0.9917 pCi/m^2/s, with an average result including detects and non-detects of 0.0424 pCi/m^2/s. As in previous years, these results are well below the 20 pCi/m^2/s standard specified in 40 CFR Part 61, Subpart Q, and demonstrate the effectiveness of the containment cell design and construction in mitigating radon-222 migration.

5.3 NON-APPLICABILITY

Requirements from section 61.93(b) of 40 CFR for continuous monitoring from point sources (stacks or vents) are not applicable to NFSS.

6.0 REFERENCES

ANL 2003. CAP88-PC Population Files for NFSS, Argonne National Laboratory, Chicago, Illinois.

Bechtel National, Inc. (BNI), 1997. "1996 Public Inhalation Dose" 14501-158-CV-030, Rev. 0, Oak Ridge, TN.

Environmental Protection Agency (EPA), 1995. *Compilation of Air Pollutant Emission Factors, Fifth Edition*, AP-42, Office of Air Quality Planning and Standards, Research Triangle Park, NC (January).

Environmental Protection Agency (EPA), 2006. CAP88-PC Version 3.0 Computer Code, U.S. Environmental Protection Agency.

Environmental Protection Agency (EPA), 1999. *Federal Guidance Report 13, Cancer Risk Coefficients for Environmental Exposure to Radionuclides,* EPA99 EPA 402-R-99_001, USEPA Office of Radiation and Indoor Air, Washington, DC.

International Commission on Radiological Protection (ICRP72), 1996. *Age Dependent Doses to Members of the Public from Intake of Radionuclides, Part 5, Compilation of Ingestion and Inhalation Dose Coefficients*," ICRP 72, Pergamon Press, Oxford.

40 CFR 61, Subpart H. *National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities.*

40 CFR 61, Subpart Q. *National Emission Standards for Radon Emissions from Department of Energy Facilities.*

ATTACHMENT A

ANNUAL WIND EROSION EMISSION CALCULATION

A.1 ANNUAL WIND EROSION

In 2012, the potential source of airborne emissions from NFSS is assumed to be from wind erosion of in-situ soil from the entire NFSS. The AP-42 model for industrial wind erosion for limited flat sources is used. In this model the potential airborne emissions are a function of the number of disturbances of contaminated soil. The following assumptions and calculations are made:

The air release source is wind erosion of in-situ soil from an area (A) of 780,000 m^2 of vegetation covered soil.

$A = 780{,}000\ m^2$

The calculation assumes that 90% of this area is covered by grass or vegetation (V).

$V = 0.90$

Weekly grass cutting is assumed for half the year, occurring May through October and in an April spring thaw. The number of estimated disturbances (N) is therefore:

$N = 27$

The threshold velocity (U_t) for overburden (USEPA 1995 Table 13.2.5-2) is:

$U_t = 1.02$ m/s

Anemometer height adjustment is not necessary.

Z_r = reference anemometer height = 10 m

Z_a = actual anemometer height = 10 m

The roughness height for overburden is 0.3 cm (USEPA 1995 Table 13.2.5-2).

$Z_o = 0.3$ cm

The corrected wind speed (U_{rN}) for each period (N) between disturbances (USEPA 1995 Equation 5) is:

$U_{rN} = U_{aN}\ [\ln(Z_r/ Z_o) / \ln(Z_a/ Z_o)]$, therefore $U_{rN} = U_{aN}$

The equivalent friction velocity (U_N) for each period between disturbances (USEPA 1995 Equation 4) is:

$U_N = 0.053\ U_{rN}$

The fastest mile speeds (maximum 2-minute wind speeds[a]) from Local Climatological Data reports from NOAA for Niagara Falls International Airport (NFIA) in mph for the period between each disturbance are:

$U_{a1} = 37$	$U_{a2} = 23$	$U_{a3} = 30$	$U_{a4} = 25$	$U_{a5} = 26$	$U_{a6} = 28$
$U_{a7} = 22$	$U_{a8} = 28$	$U_{a9} = 26$	$U_{a10} = 24$	$U_{a11} = 26$	$U_{a12} = 20$
$U_{a13} = 33$	$U_{a14} = 30$	$U_{a15} = 31$	$U_{a16} = 24$	$U_{a17} = 24$	$U_{a18} = 17$
$U_{a19} = 24$	$U_{a20} = 31$	$U_{a21} = 22$	$U_{a22} = 29$	$U_{a23} = 24$	$U_{a24} = 29$
$U_{a25} = 40$	$U_{a26} = 33$	$U_{a27} = 36$			

[a]Maximum 2-minute wind speeds can be used to approximate fastest mile wind speeds (USEPA 2004 Table 7-4), however, this calculation applies an uncertainty correction factor, protective of human health, of 1.3 in order to approximate the fastest mile wind speeds.

The equivalent friction velocity in m/s for each period is:

U_1	1.14E+00	U_{11}	8.01E-01	U_{21}	6.78E-01
U_2	7.08E-01	U_{12}	6.16E-01	U_{22}	8.93E-01
U_3	9.24E-01	U_{13}	1.02E+00	U_{23}	7.39E-01
U_4	7.70E-01	U_{14}	9.24E-01	U_{24}	8.93E-01
U_5	8.01E-01	U_{15}	9.55E-01	U_{25}	1.23E+00
U_6	8.62E-01	U_{16}	7.39E-01	U_{26}	1.02E+00
U_7	6.78E-01	U_{17}	7.39E-01	U_{27}	1.11E+00
U_8	8.62E-01	U_{18}	5.24E-01		
U_9	8.01E-01	U_{19}	7.39E-01		
U_{10}	7.39E-01	U_{20}	9.55E-01		

The erosion potential (P_N) for a dry exposed surface (USEPA 1985 Figure 4-2) is:

$$P_N = 58\ (U^*-U_t)^2 + 25(U^*-U_t) = 14.41\ g/m^2$$

The erosion potentials (P_N) for each period between disturbances are all less than or equal to the threshold friction velocity except for U_1, U_3, U_6, , and U_{23}.

The particle size multiplier (k) for 10 μ particles (USEPA 1995 Equation 2) is:

$$k = 0.5$$

The emission factor (P) for dry bare soil for 10 μ particles (USEPA 1995 Equation 2) is:

$$P = k \sum P_N = 7.2\ g/m^2$$

Thornthwaite's Precipitation Evaporation Index (PE), used as a measure of average soil moisture, is:

$$PE = 110$$

The corrected emission factor (PM_{10}) for 10 μ particles (USEPA 1985 Equation 4-1) is:

$$PM_{10} = P(1-V) / (PE/50)^2 = 0.15\ g/m^2/yr$$

The annual wind erosion emission (E) is calculated to be:

$$E = A\ (PM_{10}) = 116{,}103\ g\ soil$$

A.2 REFERENCES

EPA 2004. *Methods for Estimating Fugitive Air Emissions of Radionuclides from Diffuse Sources at USDOE Facilities*, Final Report, September 3, 2004.

EPA 1995. *AP 42 Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources,* Fifth Edition, 1995.

M. J. Changery, *National Wind Data Index Final Report*, HCO/T1041-01 UC-60, National Climatic Center, Asheville, NC, December 1978.

EPA 1985. *Rapid Assessment of Exposure to Particulate Emissions from Surface Contaminated Sites*, EPA/600/8-85/002, Office of Health and Environmental Assessment, Washington, DC (February).

EPA 1985. *AP 42 Compilation of Air Pollution Emission Factors,* Third Edition (including supplements 1-7), August 1977.

ATTACHMENT B

SOURCE TERM DEVELOPMENTAND ANNUAL AIR EMISSIONS

B.1 SOURCE TERM DEVELOPMENT

The source term for NFSS NESHAPS calculations was developed considering the radionuclides in the uranium, thorium, and actinium decay series as shown in Table B-1. Concentration data for these radioisotopes were taken from Phases I, II, and III of the Remedial Investigation and are listed in Table B-2. The Phase I sampling was performed from November 1999 through January 2000. The Phase II was performed from August 2000 through October 2000. The Phase III sampling was performed from May 2001 through October 2003. The dataset has been verified to ensure data quality and includes the analysis of soils from biased high locations (i.e., locations that had elevated gamma survey readings).

The IWCS, completed in 1986 and added to in 1991, is surrounded by sufficient topsoil and compacted clay to consider radionuclide emissions negligible. In 1986, the entire IWCS was covered with 0.9 meters (3 feet) of low-permeability, compacted clay, a 0.3 meter (12 inch)-thick layer of loosely compacted soil, 0.15 meter (6 inches) of topsoil and covered with shallow-rooted grass. A clay cutoff wall and dike measuring 3.35 to 8.84 meters (11 to 29 feet) in thickness formed the perimeter. In 1991 additional soil with residual radioactivity from a vicinity property, along with 60 drums containing radioactive material, were placed over the existing IWCS. Six inches of clay was placed over the waste material and two feet of compacted clay was added on top along with 0.46 meter (1.5 feet) of topsoil material. However, the area of the cap was included in the site area estimate.

Radium-226 was detected at an elevated concentration of 1,140 pCi/g in one area during the Phase I remedial investigation. This was analyzed and determined to come from a stone in the sample. Although release rates are based on dust erosion and not buried stones, this detection was used in the source term calculation.

Soil concentration data, listed in Table B-3, are not available for all the radionuclides in Table B-1. If explicit results for a radionuclide were not available, it was assumed that the radionuclide was present in equilibrium with (i.e., at the same concentration as) the nearest long-lived parent. Branching ratios were used to estimate source term concentrations. Table B-3 lists the source term values used in the CAP-88 modeled scenarios.

Table B-1. Radionuclides Considered in NESHAPS Evaluation

Uranium Series	Thorium Series	Actinium Series
U-238	Th-232	U-235
Th-234	Ra-228	Th-231
Pa-234m	Ac-228	Pa-231
Pa-234 (0.13%)	Th-228	Ac-227
U-234	Ra-224	Th-227 (98.62%)
Th-230	*Rn-220 (thoron)	Fr-223 (1.38%)
Ra-226	Po-216	Ra-223
*Rn-222 (radon)	Pb-212	*Rn-219 (actinon)
Po-218	Bi-212	Po-215
Pb-214 (99.98%)	Po-212 (64.07%)	Pb-211 (≈ 100%)
At-218 (0.02%)	Tl-208 (35.93%)	At-215 (0.00023%)
Bi-214	*Pb-208 (stable)	Bi-211
Po-214 (99.979%)		Po-211 (0.273%)
Tl-210 (0.021%)		Tl-207 (99.73%)
Pb-210		*Pb-207 (stable)
Bi-210		
Po-210 (≈ 100%)		
Tl-206 (0.00013%)		
*Pb-206 (stable)		

Nuclides with asterisks (*) were excluded from dose calculations because radon isotopes, including thoron and action, are specifically excluded per the regulation or they are stable nuclides and do not contribute to radiological dose. Nuclides are presented from top to bottom in order of decay starting from the parent radionuclides. Branching fractions are shown, as appropriate, for consideration in source term development. Fractions taken from Shleien, 1992. Because in the year 2013 EPA revised CAP88 Ver 3 the input into the source term was changed to the inclusion of 10 subchains for the three series listed above. The subchains used are indicated in alternating highlight. Subchains were input based upon the decay half-lives significant to a 100-year build-up. Chain length was limited to 10 daughters, the highest number of subchain daughters for the Ac-227 subchain.

Table B-2. Summary of Phases I, II, and III Characterization Data Used in NESHAP Dose Calculations

Analyte	Units	Results	Minimum Detect	Maximum Detect	Average Result	95% UCL of the Mean	Input Exposure Concentration
Radium-226 [a]	(pCi/g)	552	0.0607	1140	10.23	26.09	26.09
Thorium-228	(pCi/g)	552	0.0481	2.38	1.06	1.08	1.08
Thorium-230	(pCi/g)	552	0.0906	978	8.68	22.74	22.74
Thorium-232	(pCi/g)	551	0.0149	2.07	0.88	0.89	0.89
Uranium-234	(pCi/g)	552	0.0416	8340	20.57	87.4	87.4
Uranium-235	(pCi/g)	553	-0.16	886	1.94	8.97	8.97
Uranium-238	(pCi/g)	551	0.049	8830	21.59	92.38	92.38

[a] Includes previous outlier 1,140 pCi/g (NiagAir1 on 25JUL00 at 15:36 using dataset allradnq)

Table B-3. Soil Concentration and Estimated Emission of Radionuclides from NFSS for CY 2012

Soil Concentration and CAPP88 Input Source Term								
Uranium Series			Thorium Series			Actinium Series		
Nuclide	**pCi/g**	**Ci/y**	**Nuclide**	**pCi/g**	**Ci/y**	**Nuclide**	**pCi/g**	**Ci/y**
U-238	92.38	1.07E-05	Th-232	0.89	1.03E-07	U-235	8.97	1.04E-06
Th-234	92.38		Ra-228	0.89	1.03E-07	Th-231	8.97	
Pa-234m	92.38		Ac-228	0.89		Pa-231	8.97	1.04E-06
Pa-234	92.38		Th-228	1.08		Ac-227	8.97	2.93E-06
U-234	87.4	1.01E-05	Ra-224	1.08		Th-227	8.97	
Th-230	22.74	2.64E-06	Rn-220	1.08		Fr-223	8.97	
Ra-226	26.09	3.03E-06	Po-216	1.08		Ra-223	8.97	
Rn-222	26.09		Pb-212	1.08		Rn-219	8.97	
Po-218	26.09		Bi-212	1.08		Po-215	8.97	
Pb-214	26.09		Po-212	1.08		Pb-211	8.97	
At-218	26.09		Tl-208	1.08		At-215	8.97	
Bi-214	26.09		Pb-208 (stable)	1.08	0.00E-00	Bi-211	8.97	
Po-214	26.09					Po-211	8.97	
Tl-210	26.09					Tl-207	8.97	
Pb-210	26.09	3.03E-06				Pb-207 (stable)	8.97	0.00E-00
Bi-210	26.09							
Po-210	26.09							
Tl-206	26.09							
Pb-206 (stable)	26.09	0.00E-00						

B.2 REFERENCES

Shleien, 1992. *The Health Physics and Radiological Health Handbook*, Scinta, Inc., Silver Spring, MD.

ATTACHMENT C

CAPP88-PC REPORTS – INDIVIDUAL

C A P 8 8 - P C

Version 3.0

Clean Air Act Assessment Package - 1988

D O S E A N D R I S K E Q U I V A L E N T S U M M A R I E S

Non-Radon Individual Assessment
Jun 10, 2013 04:35 pm

Facility: Niagara Falls Storage Site
Address: 1397 Pletcher Road
City: Lewiston
State: NY Zip: 14174

Source Category: Area
Source Type: Area
Emission Year: 2012

Comments: NFSS Technical Memo 2012 Year
Individual Dose

Dataset Name: NFSS 2012 Ind
Dataset Date: 6/10/2013 3:38:00 PM
Wind File: . C:\CAP88 V3\program files\CAP88-PC30\WindLib\IAG0905.WND

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem/y)
Adrenals	1.57E-05
B Surfac	3.84E-03
Breasts	1.61E-05
St Wall	1.60E-05
ULI Wall	1.88E-05
Kidneys	1.10E-04
Lungs	4.21E-04
Ovaries	4.33E-05
R Marrow	1.86E-04
Spleen	4.30E-05
Thymus	1.59E-05
Uterus	1.58E-05
Bld Wall	1.60E-05
Brain	1.58E-05
Esophagu	1.30E-04
SI Wall	1.61E-05
LLI Wall	2.49E-05
Liver	2.62E-04
Muscle	1.62E-05
Pancreas	1.57E-05
Skin	7.22E-05
Testes	4.39E-05
Thyroid	1.60E-05
EFFEC	2.80E-03

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem/y)
INGESTION	3.89E-04
INHALATION	2.41E-03
AIR IMMERSION	3.05E-10
GROUND SURFACE	3.00E-06
INTERNAL	2.79E-03
EXTERNAL	3.00E-06
TOTAL	2.80E-03

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem/y)
U-238	2.85E-04
Th-234	3.05E-08
Pa-234m	4.34E-07
Pa-234	0.00E+00
U-234	3.15E-04
Th-230	3.30E-04
Ra-226	2.06E-04
Rn-222	1.92E-15
Po-218	1.15E-11
Pb-214	3.20E-07
Bi-214	1.92E-06
Po-214	1.05E-10
Pb-210	1.51E-04
Bi-210	4.81E-08
Po-210	3.79E-12
At-218	0.00E+00
Th-232	2.07E-05
Ra-228	2.21E-06
Ac-228	1.57E-10
Th-228	0.00E+00
Ra-224	0.00E+00
Rn-220	0.00E+00
Po-216	0.00E+00
Pb-212	0.00E+00
Bi-212	0.00E+00
Po-212	0.00E+00
Tl-208	0.00E+00
U-235	2.91E-05
Th-231	7.31E-09
Pa-231	8.24E-04
Ac-227	6.33E-04
Th-227	3.81E-08
Ra-223	4.13E-08
Rn-219	0.00E+00
Po-215	5.74E-11
Pb-211	3.24E-08
Bi-211	1.50E-08
Tl-207	1.89E-08
Po-211	0.00E+00
Fr-223	2.83E-10
TOTAL	2.80E-03

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk
Esophagu	2.24E-12
Stomach	6.35E-12
Colon	2.97E-11
Liver	6.65E-11
LUNG	8.45E-10
Bone	5.26E-11
Skin	2.24E-13
Breast	3.65E-12
Ovary	7.62E-12
Bladder	5.24E-12
Kidneys	1.31E-11
Thyroid	5.02E-13
Leukemia	1.13E-11
Residual	3.30E-11
Total	1.08E-09
TOTAL	2.15E-09

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	1.12E-10
INHALATION	9.63E-10
AIR IMMERSION	1.62E-16
GROUND SURFACE	1.40E-12
INTERNAL	1.08E-09
EXTERNAL	1.40E-12
TOTAL	1.08E-09

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	2.23E-10
Th-234	1.59E-14
Pa-234m	6.95E-14
Pa-234	0.00E+00
U-234	2.48E-10
Th-230	1.58E-10
Ra-226	1.13E-10
Rn-222	1.04E-21
Po-218	6.31E-18
Pb-214	1.70E-13
Bi-214	1.02E-12
Po-214	5.77E-17
Pb-210	5.78E-11
Bi-210	6.73E-15
Po-210	2.08E-18
At-218	0.00E+00
Th-232	9.20E-12
Ra-228	1.05E-12
Ac-228	1.00E-16
Th-228	0.00E+00
Ra-224	0.00E+00
Rn-220	0.00E+00
Po-216	0.00E+00
Pb-212	0.00E+00
Bi-212	0.00E+00
Po-212	0.00E+00
Tl-208	0.00E+00
U-235	2.28E-11
Th-231	3.31E-15
Pa-231	7.77E-11
Ac-227	1.65E-10
Th-227	2.06E-14
Ra-223	2.24E-14
Rn-219	0.00E+00
Po-215	3.15E-17
Pb-211	1.08E-14
Bi-211	8.23E-15
Tl-207	2.42E-15
Po-211	0.00E+00
Fr-223	2.39E-16
TOTAL	1.08E-09

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	533	783	914	1105	1250	1486	2499
N	2.0E-03	8.2E-04	6.3E-04	4.7E-04	3.9E-04	3.1E-04	1.6E-04
NNW	1.6E-03	6.4E-04	4.6E-04	3.2E-04	2.5E-04	1.8E-04	7.7E-05
NW	1.6E-03	5.5E-04	4.2E-04	3.1E-04	2.6E-04	2.0E-04	1.1E-04
WNW	1.7E-03	8.6E-04	6.3E-04	4.5E-04	3.7E-04	2.7E-04	1.3E-04
W	1.9E-03	9.3E-04	7.1E-04	5.4E-04	4.6E-04	3.6E-04	2.0E-04
WSW	1.9E-03	9.2E-04	6.8E-04	4.8E-04	3.9E-04	2.9E-04	1.3E-04
SW	1.7E-03	6.7E-04	5.1E-04	3.8E-04	3.2E-04	2.5E-04	1.3E-04
SSW	1.5E-03	6.9E-04	5.0E-04	3.5E-04	2.9E-04	2.1E-04	9.9E-05
S	1.7E-03	6.8E-04	5.2E-04	3.9E-04	3.3E-04	2.6E-04	1.4E-04
SSE	1.9E-03	8.8E-04	6.5E-04	4.6E-04	3.7E-04	2.8E-04	1.3E-04
SE	2.1E-03	9.6E-04	7.3E-04	5.3E-04	4.5E-04	3.5E-04	1.8E-04
ESE	2.4E-03	1.1E-03	8.3E-04	5.9E-04	4.8E-04	3.6E-04	1.7E-04
E	2.7E-03	1.1E-03	8.5E-04	6.2E-04	5.1E-04	3.9E-04	1.9E-04
ENE	2.8E-03	1.3E-03	9.8E-04	6.9E-04	5.6E-04	4.2E-04	1.8E-04
NE	2.8E-03	1.3E-03	1.0E-03	7.4E-04	6.2E-04	4.9E-04	2.5E-04
NNE	2.5E-03	1.3E-03	9.3E-04	6.6E-04	5.3E-04	4.0E-04	1.8E-04

	Distance (m)
Direction	2629
N	1.5E-04
NNW	7.4E-05
NW	1.0E-04
WNW	1.2E-04
W	1.8E-04
WSW	1.2E-04
SW	1.2E-04
SSW	9.4E-05
S	1.3E-04
SSE	1.2E-04
SE	1.7E-04
ESE	1.5E-04
E	1.8E-04
ENE	1.7E-04
NE	2.3E-04
NNE	1.7E-04

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

Direction	Distance (m) 533	783	914	1105	1250	1486	2499
N	7.7E-10	3.1E-10	2.4E-10	1.8E-10	1.5E-10	1.2E-10	5.9E-11
NNW	6.1E-10	2.4E-10	1.7E-10	1.2E-10	9.3E-11	6.6E-11	2.6E-11
NW	6.1E-10	2.1E-10	1.6E-10	1.2E-10	9.6E-11	7.5E-11	3.8E-11
WNW	6.5E-10	3.3E-10	2.4E-10	1.7E-10	1.4E-10	1.0E-10	4.5E-11
W	7.2E-10	3.5E-10	2.7E-10	2.0E-10	1.7E-10	1.4E-10	7.2E-11
WSW	7.1E-10	3.5E-10	2.6E-10	1.8E-10	1.4E-10	1.1E-10	4.7E-11
SW	6.6E-10	2.6E-10	1.9E-10	1.4E-10	1.2E-10	9.2E-11	4.7E-11
SSW	5.9E-10	2.6E-10	1.9E-10	1.3E-10	1.1E-10	7.9E-11	3.4E-11
S	6.4E-10	2.6E-10	2.0E-10	1.5E-10	1.2E-10	9.6E-11	4.9E-11
SSE	7.2E-10	3.4E-10	2.5E-10	1.7E-10	1.4E-10	1.0E-10	4.5E-11
SE	8.2E-10	3.7E-10	2.8E-10	2.0E-10	1.7E-10	1.3E-10	6.5E-11
ESE	9.1E-10	4.3E-10	3.2E-10	2.2E-10	1.8E-10	1.4E-10	6.0E-11
E	1.0E-09	4.3E-10	3.2E-10	2.3E-10	1.9E-10	1.5E-10	7.0E-11
ENE	1.1E-09	5.1E-10	3.8E-10	2.6E-10	2.1E-10	1.6E-10	6.6E-11
NE	1.1E-09	5.0E-10	3.8E-10	2.8E-10	2.4E-10	1.9E-10	9.3E-11
NNE	9.5E-10	4.8E-10	3.5E-10	2.5E-10	2.0E-10	1.5E-10	6.4E-11

Direction	Distance (m) 2629
N	5.5E-11
NNW	2.5E-11
NW	3.6E-11
WNW	4.3E-11
W	6.7E-11
WSW	4.4E-11
SW	4.4E-11
SSW	3.3E-11
S	4.6E-11
SSE	4.2E-11
SE	6.0E-11
ESE	5.6E-11
E	6.5E-11
ENE	6.2E-11
NE	8.6E-11
NNE	6.0E-11

ATTACHMENT D

CAPP88-PC REPORTS – POPULATION

C A P 8 8 - P C

Version 3.0

Clean Air Act Assessment Package - 1988

D O S E A N D R I S K E Q U I V A L E N T S U M M A R I E S

Non-Radon Population Assessment
Jun 10, 2013 05:52 pm

Facility: Niagara Falls Storage Site
Address: 1397 Pletcher Road
City: Lewiston
State: NY Zip: 14174

Source Category: Area
Source Type: Area
Emission Year: 2012

Comments: NFSS Technical Memo 2012 Year
Population Dose

Dataset Name: NFSS 2012 Pop
Dataset Date: 6/10/2013 4:53:00 PM
Wind File: . C:\CAP88 V3\program files\CAP88-PC30\WindLib\IAG0905.WND
Population File: C:\CAP88 V3\program files\CAP88-PC30\Poplib\NFSS2003.POP

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem/y)	Collective Population (person-rem/y)
Adrenals	4.93E-05	8.07E-05
B Surfac	1.28E-02	1.86E-02
Breasts	5.09E-05	8.44E-05
St Wall	5.00E-05	8.25E-05
ULI Wall	5.55E-05	9.23E-05
Kidneys	2.52E-04	4.31E-04
Lungs	1.66E-03	2.29E-03
Ovaries	1.54E-04	2.26E-04
R Marrow	5.59E-04	8.51E-04
Spleen	7.43E-05	1.49E-04
Thymus	4.99E-05	8.21E-05
Uterus	4.97E-05	8.16E-05
Bld Wall	5.03E-05	8.29E-05
Brain	4.99E-05	8.20E-05
Esophagu	5.04E-04	7.04E-04
SI Wall	5.00E-05	8.25E-05
LLI Wall	6.63E-05	1.13E-04
Liver	9.18E-04	1.32E-03
Muscle	5.12E-05	8.50E-05
Pancreas	4.94E-05	8.09E-05
Skin	2.64E-04	5.78E-04
Testes	1.56E-04	2.31E-04
Thyroid	5.03E-05	8.30E-05
EFFEC	9.82E-03	1.40E-02

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem/y)	Collective Population (person-rem/y)
INGESTION	2.21E-04	8.47E-04
INHALATION	9.59E-03	1.31E-02
AIR IMMERSION	1.22E-09	1.67E-09
GROUND SURFACE	1.14E-05	2.64E-05
INTERNAL	9.81E-03	1.40E-02
EXTERNAL	1.14E-05	2.64E-05
TOTAL	9.82E-03	1.40E-02

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclides	Selected Individual (mrem/y)	Collective Population (person-rem/y)
U-238	1.03E-03	1.46E-03
Th-234	1.15E-07	2.67E-07
Pa-234m	1.65E-06	3.82E-06
Pa-234	0.00E+00	0.00E+00
U-234	1.15E-03	1.63E-03
Th-230	1.21E-03	1.70E-03
Ra-226	4.10E-04	7.49E-04
Rn-222	7.54E-15	1.65E-14
Po-218	4.36E-11	1.01E-10
Pb-214	1.21E-06	2.82E-06
Bi-214	7.27E-06	1.69E-05
Po-214	3.99E-10	9.28E-10
Pb-210	1.78E-04	4.12E-04
Bi-210	1.83E-07	4.17E-07
Po-210	1.44E-11	3.34E-11
At-218	0.00E+00	0.00E+00
Th-232	8.26E-05	1.13E-04
Ra-228	8.79E-06	1.21E-05
Ac-228	6.27E-10	8.60E-10
Th-228	0.00E+00	0.00E+00
Ra-224	0.00E+00	0.00E+00
Rn-220	0.00E+00	0.00E+00
Po-216	0.00E+00	0.00E+00
Pb-212	0.00E+00	0.00E+00
Bi-212	0.00E+00	0.00E+00
Po-212	0.00E+00	0.00E+00
Tl-208	0.00E+00	0.00E+00
U-235	1.06E-04	1.50E-04
Th-231	2.77E-08	6.44E-08
Pa-231	3.16E-03	4.38E-03
Ac-227	2.46E-03	3.40E-03
Th-227	1.44E-07	3.36E-07
Ra-223	1.57E-07	3.64E-07
Rn-219	0.00E+00	0.00E+00
Po-215	2.18E-10	5.06E-10
Pb-211	1.23E-07	2.86E-07
Bi-211	5.70E-08	1.32E-07
Tl-207	7.18E-08	1.67E-07
Po-211	0.00E+00	0.00E+00
Fr-223	1.13E-09	1.54E-09
TOTAL	9.82E-03	1.40E-02

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
Esophagu	5.80E-12	1.21E-10
Stomach	1.36E-11	3.09E-10
Colon	4.16E-11	1.17E-09
Liver	2.11E-10	4.03E-09
LUNG	3.34E-09	5.95E-08
Bone	1.46E-10	2.94E-09
Skin	6.02E-13	1.50E-11
Breast	7.92E-12	1.82E-10
Ovary	2.56E-11	4.82E-10
Bladder	1.38E-11	2.86E-10
Kidneys	2.19E-11	5.50E-10
Thyroid	1.10E-12	2.47E-11
Leukemia	2.69E-11	5.83E-10
Residual	5.40E-11	1.41E-09
Total	3.91E-09	7.16E-08

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
INGESTION	6.44E-11	3.23E-09
INHALATION	3.84E-09	6.82E-08
AIR IMMERSION	6.46E-16	1.15E-14
GROUND SURFACE	5.31E-12	1.60E-10
INTERNAL	3.90E-09	7.14E-08
EXTERNAL	5.31E-12	1.60E-10
TOTAL	3.91E-09	7.16E-08

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
U-238	8.53E-10	1.53E-08
Th-234	5.95E-14	1.79E-12
Pa-234m	2.64E-13	7.94E-12
Pa-234	0.00E+00	0.00E+00
U-234	9.54E-10	1.71E-08
Th-230	6.19E-10	1.10E-08
Ra-226	3.11E-10	6.36E-09
Rn-222	4.10E-21	1.16E-19
Po-218	2.39E-17	7.21E-16
Pb-214	6.47E-13	1.95E-11
Bi-214	3.86E-12	1.16E-10
Po-214	2.19E-16	6.59E-15
Pb-210	9.02E-11	2.33E-09
Bi-210	2.58E-14	6.98E-13
Po-210	7.89E-18	2.37E-16
At-218	0.00E+00	0.00E+00
Th-232	3.67E-11	6.51E-10
Ra-228	4.20E-12	7.46E-11
Ac-228	4.00E-16	7.10E-15
Th-228	0.00E+00	0.00E+00
Ra-224	0.00E+00	0.00E+00
Rn-220	0.00E+00	0.00E+00
Po-216	0.00E+00	0.00E+00
Pb-212	0.00E+00	0.00E+00
Bi-212	0.00E+00	0.00E+00
Po-212	0.00E+00	0.00E+00
Tl-208	0.00E+00	0.00E+00
U-235	8.72E-11	1.57E-09
Th-231	1.26E-14	3.77E-13
Pa-231	2.99E-10	5.36E-09
Ac-227	6.48E-10	1.16E-08
Th-227	7.81E-14	2.35E-12
Ra-223	8.48E-14	2.55E-12
Rn-219	0.00E+00	0.00E+00
Po-215	1.19E-16	3.59E-15
Pb-211	4.08E-14	1.23E-12
Bi-211	3.12E-14	9.39E-13
Tl-207	9.17E-15	2.76E-13
Po-211	0.00E+00	0.00E+00
Fr-223	9.53E-16	1.69E-14
TOTAL	3.91E-09	7.16E-08

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

Direction	Distance (m) 250	750	1500	2500	3500	4500	7500
N	9.8E-03	7.6E-04	2.4E-04	1.1E-04	6.3E-05	4.3E-05	2.0E-05
NNW	9.8E-03	5.9E-04	1.2E-04	3.4E-05	1.9E-05	1.3E-05	6.0E-06
NW	9.8E-03	5.0E-04	1.4E-04	6.0E-05	3.5E-05	2.3E-05	1.1E-05
WNW	9.8E-03	8.0E-04	2.1E-04	7.8E-05	4.5E-05	3.0E-05	1.4E-05
W	9.8E-03	8.6E-04	2.8E-04	1.4E-04	7.9E-05	5.4E-05	2.4E-05
WSW	9.8E-03	8.6E-04	2.2E-04	8.0E-05	4.6E-05	3.2E-05	1.4E-05
SW	9.7E-03	6.1E-04	1.8E-04	8.0E-05	4.6E-05	3.2E-05	1.4E-05
SSW	9.8E-03	6.3E-04	1.5E-04	5.2E-05	3.0E-05	2.1E-05	9.3E-06
S	9.8E-03	6.2E-04	1.9E-04	8.6E-05	5.0E-05	3.4E-05	1.5E-05
SSE	9.8E-03	8.2E-04	2.1E-04	7.6E-05	4.4E-05	3.0E-05	1.3E-05
SE	9.8E-03	8.9E-04	2.7E-04	1.2E-04	7.0E-05	4.7E-05	2.1E-05
ESE	9.8E-03	1.0E-03	2.8E-04	1.1E-04	6.4E-05	4.3E-05	2.0E-05
E	9.7E-03	1.1E-03	3.1E-04	1.3E-04	7.7E-05	5.2E-05	2.4E-05
ENE	9.8E-03	1.3E-03	3.3E-04	1.3E-04	7.3E-05	4.9E-05	2.3E-05
NE	9.8E-03	1.2E-03	3.9E-04	1.8E-04	1.1E-04	7.3E-05	3.3E-05
NNE	9.8E-03	1.2E-03	3.1E-04	1.2E-04	7.0E-05	4.8E-05	2.2E-05

Direction	Distance (m) 15000	25000	35000	45000	55000	65000	75000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.5E-07	5.1E-07
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-07	2.2E-07	1.8E-07
NW	3.8E-06	0.0E+00	0.0E+00	0.0E+00	4.8E-07	3.4E-07	2.6E-07
WNW	4.9E-06	0.0E+00	0.0E+00	0.0E+00	6.0E-07	4.0E-07	3.1E-07
W	8.8E-06	4.0E-06	2.4E-06	1.6E-06	1.1E-06	7.3E-07	5.6E-07
WSW	5.2E-06	2.4E-06	1.5E-06	9.9E-07	6.9E-07	4.7E-07	3.7E-07
SW	5.2E-06	2.4E-06	1.5E-06	9.8E-07	6.8E-07	4.7E-07	0.0E+00
SSW	3.4E-06	1.5E-06	9.4E-07	6.4E-07	0.0E+00	3.2E-07	2.6E-07
S	5.5E-06	2.5E-06	1.5E-06	1.0E-06	7.2E-07	5.0E-07	3.9E-07
SSE	4.9E-06	2.2E-06	1.4E-06	9.4E-07	6.6E-07	4.7E-07	3.7E-07
SE	7.8E-06	3.5E-06	2.2E-06	1.5E-06	1.0E-06	7.2E-07	5.6E-07
ESE	7.2E-06	3.3E-06	2.0E-06	1.4E-06	9.6E-07	6.8E-07	5.3E-07
E	8.7E-06	4.0E-06	2.5E-06	1.7E-06	1.2E-06	8.2E-07	6.4E-07
ENE	8.3E-06	3.8E-06	2.4E-06	1.6E-06	1.1E-06	8.2E-07	6.5E-07
NE	1.2E-05	5.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	8.0E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.1E-07

COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	250	750	1500	2500	3500	4500	7500
N	8.8E-05	2.1E-05	2.3E-05	1.5E-05	1.2E-05	1.0E-05	2.7E-05
NNW	8.8E-05	1.6E-05	1.2E-05	4.5E-06	3.6E-06	2.9E-06	9.2E-06
NW	8.8E-05	1.4E-05	1.6E-05	9.1E-06	6.5E-06	6.1E-06	8.7E-05
WNW	8.8E-05	2.2E-05	2.3E-05	1.4E-05	1.1E-05	1.7E-05	5.1E-05
W	8.8E-05	2.4E-05	3.2E-05	2.5E-05	1.3E-04	1.8E-05	2.7E-05
WSW	8.8E-05	2.4E-05	2.4E-05	1.5E-05	7.1E-05	6.1E-05	9.5E-05
SW	8.7E-05	1.7E-05	2.0E-05	1.5E-05	1.5E-05	6.7E-05	1.7E-04
SSW	8.8E-05	1.8E-05	1.7E-05	9.7E-06	8.7E-06	3.2E-05	1.0E-04
S	8.8E-05	1.7E-05	2.1E-05	1.6E-05	1.1E-05	9.9E-06	1.6E-04
SSE	8.8E-05	2.3E-05	2.3E-05	1.4E-05	9.8E-06	8.4E-06	6.2E-05
SE	8.8E-05	2.5E-05	3.0E-05	2.2E-05	1.7E-05	1.3E-05	6.7E-05
ESE	8.8E-05	2.9E-05	3.1E-05	2.0E-05	1.6E-05	1.4E-05	5.0E-05
E	8.8E-05	3.0E-05	3.4E-05	2.5E-05	2.0E-05	1.7E-05	5.7E-05
ENE	8.8E-05	3.5E-05	3.6E-05	2.3E-05	1.4E-05	1.0E-05	7.2E-05
NE	8.8E-05	3.4E-05	4.3E-05	2.3E-05	1.2E-05	1.1E-05	9.0E-05
NNE	8.8E-05	3.3E-05	3.1E-05	1.6E-05	1.3E-05	9.9E-06	3.3E-05

	Distance (m)						
Direction	15000	25000	35000	45000	55000	65000	75000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.0E-05	1.5E-04
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-05	2.3E-04	1.2E-04
NW	3.8E-06	0.0E+00	0.0E+00	0.0E+00	2.4E-06	2.7E-04	1.4E-04
WNW	1.7E-05	0.0E+00	0.0E+00	0.0E+00	6.0E-10	1.0E-04	2.8E-05
W	2.3E-04	2.5E-04	2.3E-05	4.5E-05	2.3E-05	1.2E-04	1.4E-04
WSW	7.7E-05	1.1E-04	1.2E-05	6.7E-06	3.7E-06	4.6E-06	2.1E-06
SW	3.7E-04	1.3E-05	8.3E-05	1.4E-05	1.3E-06	3.3E-07	0.0E+00
SSW	3.9E-04	3.5E-06	7.2E-06	2.8E-06	0.0E+00	4.6E-08	3.8E-06
S	5.0E-04	1.3E-04	1.5E-04	6.0E-06	7.6E-05	3.1E-05	1.4E-05
SSE	3.8E-04	1.0E-03	1.2E-03	4.4E-04	1.1E-04	2.0E-05	9.0E-06
SE	1.4E-04	4.2E-04	4.0E-04	1.6E-04	4.8E-05	1.7E-05	1.2E-05
ESE	8.0E-05	2.7E-04	3.2E-05	3.3E-05	2.1E-05	4.6E-05	1.7E-05
E	8.4E-05	2.1E-04	3.9E-05	6.3E-05	1.8E-05	3.1E-05	2.5E-05
ENE	4.8E-05	8.3E-05	2.3E-05	1.1E-05	6.6E-06	2.7E-06	1.2E-06
NE	1.0E-04	6.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-05

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

Direction	Distance (m) 250	750	1500	2500	3500	4500	7500
N	3.9E-09	3.0E-10	9.4E-11	4.3E-11	2.5E-11	1.7E-11	7.7E-12
NNW	3.9E-09	2.3E-10	4.9E-11	1.3E-11	7.7E-12	5.2E-12	2.4E-12
NW	3.9E-09	2.0E-10	5.7E-11	2.4E-11	1.4E-11	9.3E-12	4.2E-12
WNW	3.9E-09	3.2E-10	8.1E-11	3.1E-11	1.8E-11	1.2E-11	5.4E-12
W	3.9E-09	3.4E-10	1.1E-10	5.5E-11	3.1E-11	2.1E-11	9.6E-12
WSW	3.9E-09	3.4E-10	8.6E-11	3.2E-11	1.8E-11	1.3E-11	5.7E-12
SW	3.9E-09	2.4E-10	7.3E-11	3.2E-11	1.8E-11	1.3E-11	5.7E-12
SSW	3.9E-09	2.5E-10	6.0E-11	2.1E-11	1.2E-11	8.1E-12	3.7E-12
S	3.9E-09	2.5E-10	7.6E-11	3.4E-11	2.0E-11	1.3E-11	6.0E-12
SSE	3.9E-09	3.3E-10	8.2E-11	3.0E-11	1.7E-11	1.2E-11	5.3E-12
SE	3.9E-09	3.5E-10	1.1E-10	4.8E-11	2.8E-11	1.9E-11	8.5E-12
ESE	3.9E-09	4.2E-10	1.1E-10	4.4E-11	2.5E-11	1.7E-11	7.8E-12
E	3.9E-09	4.2E-10	1.2E-10	5.3E-11	3.1E-11	2.1E-11	9.5E-12
ENE	3.9E-09	5.0E-10	1.3E-10	5.0E-11	2.9E-11	2.0E-11	9.0E-12
NE	3.9E-09	4.9E-10	1.6E-10	7.3E-11	4.3E-11	2.9E-11	1.3E-11
NNE	3.9E-09	4.7E-10	1.2E-10	4.8E-11	2.8E-11	1.9E-11	8.6E-12

Direction	Distance (m) 15000	25000	35000	45000	55000	65000	75000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-13	2.0E-13
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-13	8.3E-14	6.6E-14
NW	1.5E-12	0.0E+00	0.0E+00	0.0E+00	1.9E-13	1.3E-13	1.0E-13
WNW	2.0E-12	0.0E+00	0.0E+00	0.0E+00	2.3E-13	1.5E-13	1.2E-13
W	3.5E-12	1.6E-12	9.6E-13	6.4E-13	4.3E-13	2.9E-13	2.2E-13
WSW	2.1E-12	9.4E-13	5.8E-13	3.9E-13	2.7E-13	1.8E-13	1.4E-13
SW	2.1E-12	9.3E-13	5.7E-13	3.9E-13	2.7E-13	1.8E-13	0.0E+00
SSW	1.3E-12	6.0E-13	3.7E-13	2.5E-13	0.0E+00	1.2E-13	9.8E-14
S	2.2E-12	9.9E-13	6.1E-13	4.1E-13	2.8E-13	1.9E-13	1.5E-13
SSE	1.9E-12	8.8E-13	5.4E-13	3.7E-13	2.6E-13	1.8E-13	1.4E-13
SE	3.1E-12	1.4E-12	8.6E-13	5.8E-13	4.0E-13	2.8E-13	2.2E-13
ESE	2.8E-12	1.3E-12	7.9E-13	5.4E-13	3.8E-13	2.6E-13	2.1E-13
E	3.4E-12	1.6E-12	9.7E-13	6.6E-13	4.6E-13	3.2E-13	2.5E-13
ENE	3.3E-12	1.5E-12	9.3E-13	6.4E-13	4.5E-13	3.2E-13	2.5E-13
NE	4.9E-12	2.2E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	3.2E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-13

COLLECTIVE FATAL CANCER RATE (deaths/y)
(All Radionuclides and Pathways)

Direction	Distance (m) 250	750	1500	2500	3500	4500	7500
N	4.5E-10	1.1E-10	1.2E-10	7.5E-11	6.1E-11	5.2E-11	1.4E-10
NNW	4.5E-10	8.5E-11	6.4E-11	2.3E-11	1.9E-11	1.5E-11	4.7E-11
NW	4.5E-10	7.2E-11	8.1E-11	4.7E-11	3.4E-11	3.1E-11	4.5E-10
WNW	4.5E-10	1.2E-10	1.2E-10	7.4E-11	5.6E-11	9.0E-11	2.6E-10
W	4.5E-10	1.2E-10	1.6E-10	1.3E-10	6.6E-10	9.2E-11	1.4E-10
WSW	4.5E-10	1.2E-10	1.2E-10	7.6E-11	3.6E-10	3.2E-10	4.9E-10
SW	4.5E-10	8.9E-11	1.0E-10	7.7E-11	7.7E-11	3.4E-10	8.9E-10
SSW	4.5E-10	9.1E-11	8.6E-11	5.0E-11	4.5E-11	1.6E-10	5.2E-10
S	4.5E-10	9.0E-11	1.1E-10	8.2E-11	5.7E-11	5.1E-11	8.1E-10
SSE	4.6E-10	1.2E-10	1.2E-10	7.2E-11	5.0E-11	4.3E-11	3.2E-10
SE	4.5E-10	1.3E-10	1.5E-10	1.2E-10	8.7E-11	6.9E-11	3.4E-10
ESE	4.5E-10	1.5E-10	1.6E-10	1.1E-10	8.5E-11	7.3E-11	2.6E-10
E	4.5E-10	1.5E-10	1.8E-10	1.3E-10	1.0E-10	9.0E-11	2.9E-10
ENE	4.5E-10	1.8E-10	1.9E-10	1.2E-10	7.3E-11	5.3E-11	3.7E-10
NE	4.5E-10	1.8E-10	2.2E-10	1.2E-10	6.3E-11	5.4E-11	4.6E-10
NNE	4.5E-10	1.7E-10	1.6E-10	8.3E-11	6.6E-11	5.1E-11	1.7E-10

Direction	Distance (m) 15000	25000	35000	45000	55000	65000	75000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-10	7.3E-10
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-10	1.1E-09	6.1E-10
NW	2.0E-11	0.0E+00	0.0E+00	0.0E+00	1.2E-11	1.4E-09	6.9E-10
WNW	8.8E-11	0.0E+00	0.0E+00	0.0E+00	3.0E-15	5.1E-10	1.4E-10
W	1.2E-09	1.3E-09	1.2E-10	2.3E-10	1.2E-10	6.2E-10	7.1E-10
WSW	3.9E-10	5.7E-10	5.9E-11	3.4E-11	1.9E-11	2.3E-11	1.1E-11
SW	1.9E-09	6.7E-11	4.2E-10	6.9E-11	6.6E-12	1.6E-12	0.0E+00
SSW	2.0E-09	1.8E-11	3.7E-11	1.4E-11	0.0E+00	2.3E-13	1.9E-11
S	2.5E-09	6.8E-10	7.4E-10	3.0E-11	3.9E-10	1.6E-10	7.2E-11
SSE	2.0E-09	5.3E-09	6.2E-09	2.2E-09	5.3E-10	1.0E-10	4.5E-11
SE	7.2E-10	2.2E-09	2.1E-09	8.0E-10	2.4E-10	8.6E-11	6.3E-11
ESE	4.1E-10	1.4E-09	1.6E-10	1.7E-10	1.1E-10	2.3E-10	8.7E-11
E	4.3E-10	1.1E-09	2.0E-10	3.2E-10	9.1E-11	1.6E-10	1.3E-10
ENE	2.4E-10	4.2E-10	1.2E-10	5.5E-11	3.4E-11	1.4E-11	6.3E-12
NE	5.2E-10	3.3E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	2.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.5E-11

ATTACHMENT E

NATIONAL CLIMATIC DATA CENTER, NIAGARA FALLS, NEW YORK

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

NOAA, National Climatic Data Center

Month: 01/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	47	35	41	M	35	38	24	0	-	-	RA BR	0	M	0.0	0.14	29.11	29.74	11.6	22	15.0	53	230	43	240	01
02	35	19	27	M	20	26	38	0	-	-	SN BR UP	0	M	0.1s	T	29.08	29.78	M	M	16.6	38	260	29	250	02
03	19	1	10	M	3	8	55	0	-	-	SN FG+ FZFG BR UP	1	M	1.8	0.01	29.46	30.19	M	M	9.9	22	320	20	320	03
04	32	3	18	M	17	21	47	0	-	-	SN	T	M	T	T	29.40	30.01	10.3	22	12.4	24s	230	20	260	04
05	35	30	33	M	25	29	32	0	-	-		0	M	T	T	29.23	29.89	8.7	25	9.7	21	260	17	260	05
06	49	33	41	M	33	39	24	0	-	-		0	M	0.0	0.00	29.02	29.67	18.8	23	19.2	47	240	35	220	06
07	47	34	41	M	31	37	24	0	-	-		0	M	0.0	0.00	29.12	29.82	11.0	27	12.6	33	280	23	290	07
08	34	25	30	M	19	27	35	0	-	-	SN	0	M	T	T	29.59	30.29	7.1	30	8.2	24	310	21	310	08
09	40	27	34	M	25	31	31	0	-	-		0	M	0.0	0.00	29.46	30.09	12.8	22	13.2	31	240	25	240	09
10	42	32	37	M	28	33	28	0	-	-		0	M	0.0	0.00	29.26	29.95	9.1	27	10.0	31	250	24	240	10
11	50	27	39	M	29	34	26	0	-	-	RA BR	M	M	M	0.05	29.20	29.84	5.0	12	5.5	17	150	14	150	11
12	43	37	40	M	38	39	25	0	-	-	RA DZ BR	0	M	0.0	0.49	28.79	29.41	4.7	15	10.2	23	210	17	220	12
13	40	22	31	M	22	26	34	0	-	-	RA SN FZFG BR BLSN	4	M	4.0	0.12	28.78	29.51	21.3	25	22.8	43	230	35	240	13
14	22	0	11	M	7	13	54	0	-	-	SN	5	M	0.7	0.03	29.35	30.09	7.6	33	8.9	25	290	21	300	14
15	20	-1*	10*	M	2	8	55	0	-	-		4	M	0.0	0.00	29.75	30.50	0.5	09	2.0	8	310	7	310	15
16	41	7	24	M	19	25	41	0	-	-	RA BR	4	M	0.0	0.21	29.51	30.14	10.0	19	11.4	31	210	25	210	16
17	51	30	41*	M	37	39	24	0	-	-	RA SN BR	0	M	T	0.42	28.95	29.60	12.4	23	14.5	49	270	39	260	17
18	30	18	24	M	12	20	41	0	-	-	SN	T	M	0.2s	T	29.39	30.11	10.1	30	12.7	43	280	32	280	18
19	30	12	21	M	14	20	44	0	-	-	SN FG+ FZFG BR BLSN	2	M	1.5	0.05	29.25	29.92	14.7	22	18.4	43	200	31	200	19
20	20	11	16	M	6	13	49	0	-	-	SN BR	2	M	0.2	0.02	29.52	30.25	4.4	26	7.6	22	240	17	250	20
21	25	17	21	M	17	20	44	0	-	-	SN BR	3	M	0.6	0.03	29.49	30.21	3.0	03	4.9	15	080	14	350	21
22	33	16	25	M	16	23	40	0	-	-		2	M	0.0	0.00	29.60	30.27	M	M	6.4	16	160	13	160	22
23	49	27	38	M	34	37	27	0	-	-	RA BR SQ	0	M	0.0	0.36	29.12	29.77	12.1	20	15.5	54	240	48	250	23
24	36	31	34	M	26	30	31	0	-	-	SN	M	M	M	T	29.31	30.04	18.4	25	18.8	48	240	37	250	24
25	33	28	31	M	22	27	34	0	-	-	SN BR	M	M	M	0.02	29.65	30.33	7.7	26	7.9	24	270	20	270	25
26	35	28	32	M	29	31	33	0	-	-	RA DZ SN BR	0	M	0.2	0.19	29.35	29.96	6.0	09	6.3	16	070	13	080	26
27	38	31	35	M	32	34	30	0	-	-	RA SN FG BR	0	M	0.8	0.62	28.90	29.62	7.8	28	11.1	31	330	24	320	27
28	35	29	32	M	26	30	33	0	-	-	SN FG BR	T	M	0.4	0.04	29.21	29.88	16.7	23	18.3	49	240	37	260	28
29	34	21	28	M	23	28	37	0	-	-	SN FZFG BR	5	M	4.6	0.45	29.31	30.00	12.1	26	13.6	39	260	30	260	29
30	29	23	26	M	19	24	39	0	-	-	SN BR	5	M	0.7	0.02	29.52	30.19	7.5	24	11.2	23	250	20	260	30
31	53*	24	39	M	32	39	26	0	-	-		0	M	0.0	T	29.27	29.92	15.2	23	15.5	35	250	26	250	31
	36.4	21.8	29.1		22.5	27.4	35.6	0.0	<-----Monthly Averages | Totals----->				M	16.6	3.30s	29.29	29.96	8.0	24	11.9	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	1105	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: 0.78s Date: 26-27
Greatest 24-hr Snowfall: 0.5 Date: 30
Greatest Snow Depth: 5s Date: 30+

	Sea Level Pressure	Date	Time (LST)
Maximum	30.60	15	2110
Minimum	29.26	13	0105

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 9
Thunderstorms : 0
Min Temp <=32: 27
Min Temp <=0 : 2
Heavy Fog : 2
Precipitation >=.01 inch: 17s
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER2

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 02/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	51*	36	44*	M	36	40	21	0	-	-	RA BR	0	M	0.0	0.04	29.26	29.95	14.2	26	15.6	36	240	29	270	01
02	36	29	33	M	25	29	32	0	-	-	DZ	0	M	0.0	T	29.54	30.24	5.5	36	5.9	16	030	13	020	02
03	38	29	34	M	28	32	31	0	-	-		0	M	0.0	0.00	29.77	30.45	7.3	25	7.7	17	240	15	240	03
04	39	25	32	M	25	30	33	0	-	-	BR	0	M	0.0	0.00	29.63	30.29	1.2	02	2.9	13	020	10	020	04
05	37	30	34	M	24	30	31	0	-	-	SN	0	M	T	T	29.52	30.20	3.6	26	6.3	21	260	16	250	05
06	42	31	37	M	30	34	28	0	-	-		0	M	0.0	0.00	29.39	30.05	15.8	24	16.4	37	250	29	240	06
07	36	21	29	M	24	28	36	0	-	-	RA SN PL BR	M	M	M	T	29.51	30.22	5.6	32	7.5	20	360	15	360	07
08	32	17	25	M	17	23	40	0	-	-		0	M	0.0	0.00	29.59	30.27	5.5	24	5.8	21	240	15	240	08
09	37	24	31	M	21	27	34	0	-	-		0	M	0.0	0.00	29.47	30.14	16.3	24	16.5	37	230	28	230	09
10	32	29	31	M	22	28	34	0	-	-	SN BR	0	M	0.3	0.01	29.36	30.01	14.4	23	14.7	35	230	28	240	10
11	30	9*	20	M	14	18	45	0	-	-	SN BR BLSN	3	M	0.9	0.13	29.24	29.94	8.9	36	12.9	26	360	22	020	11
12	25	14	20*	M	13	19	45	0	-	-	SN BLSN	3	M	0.2	0.01	29.31	30.00	16.4	27	17.7	38	250	29	260	12
13	34	21	28	M	18	25	37	0	-	-		2	M	0.0	0.00	29.33	30.02	16.1	24	16.2	29	240	24	240	13
14	34	30	32	M	27	30	33	0	-	-	SN BR UP	0	M	0.6	0.06	29.30	29.98	7.0	21	7.6	26	230	20	240	14
15	37	25	31	M	28	31	34	0	-	-	SN BR HZ	0	M	0.0s	0.01	29.49	30.19	7.9	24	8.9	25	240	21	240	15
16	41	27	34	M	33	35	31	0	-	-	RA DZ BR UP	0	M	0.0	0.05	29.37	30.02	5.7	20	8.8	20	220	15	250	16
17	39	27	33	M	27	31	32	0	-	-	HZ	0	M	T	T	29.36	30.05	11.4	25	12.0	28	270	23	290	17
18	38	30	34	M	28	31	31	0	-	-	SN GS BR	0	M	0.4	0.04	29.31	30.00	7.0	27	11.6	32	260	26	260	18
19	30	22	26	M	19	25	39	0	-	-		0	M	0.0	0.00	29.49	30.18	4.9	34	6.4	16	360	13	320	19
20	36	18	27	M	18	24	38	0	-	-		0	M	0.0	0.00	29.62	30.33	1.8	01	3.6	13	320	9	350	20
21	47	23	35	M	25	31	30	0	-	-	RA SN BR	0	M	0.3	0.15	29.30	29.90	8.7	19	10.7	31	190	23	230	21
22	42	32	37	M	32	34	28	0	-	-	RA SN BR	2	M	3.2	0.44	28.92	29.56	12.0	23	12.5	38	230	31	230	22
23	37	29	33	M	30	32	32	0	-	-	RA SN BR	T	M	T	T	28.92	29.61	6.1	22	7.8	22	230	18	210	23
24	42	31	37	M	31	33	28	0	-	-	RA SN BR	0	M	0.2	0.34	28.76	29.41	9.3	24	19.2	58	240	46	240	24
25	33	27	30	M	20	27	35	0	-	-	SN BR UP	0	M	T	T	29.08	29.83	19.8	29	20.5	41	310	32	300	25
26	32	21	27	M	18	25	38	0	-	-		0	M	T	T	29.69	30.39	1.9	24	5.0	22	300	15	300	26
27	46	26	36	M	24	32	29	0	-	-	SN	0	M	T	T	29.49	30.17	13.6	24	16.4	45	220	36	230	27
28	35	30	33	M	22	28	32	0	-	-	SN	0	M	T	T	29.77	30.45	3.3	29	6.9	30	290	23	300	28
29	37	31	34	M	29	32	31	0	-	-	RA DZ FZRA SN PL BR	0	M	0.2	0.04	29.31	29.89	10.3	09	10.6	26	100	21	090	29
	37.1	25.7	31.4		24.4	29.1	33.4	0.0	<-----Monthly Averages | Totals----->				M	8.0s	1.39s	29.38	30.06	6.6	25	10.8	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	968	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: 0.46s Date: 21-22
Greatest 24-hr Snowfall: 0.3 Date: 23
Greatest Snow Depth: 3s Date: 13+

	Sea Level Pressure	Date	Time (LST)
Maximum	30.54	28	1028
Minimum	29.23	24	1724

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 6
Thunderstorms : 0
Min Temp <=32: 28
Min Temp <=0 : 0
Heavy Fog : 0
Precipitation >=.01 inch: 12
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER2

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 03/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	41	35	38	M	33	35	27	0	-	-	RA BR	0	M	0.0	0.08	29.01	29.72	9.2	25	11.0	32	250	25	260	01
02	50	34	42	M	34	39	23	0	-	-	RA BR	0	M	0.0	0.08	29.15	29.73	7.3	15	8.6	39	190	29	180	02
03	51	32	42	M	28	34	23	0	-	-	RA SN	0	M	T	0.01	28.77	29.47	32.4	24	32.8	69	240	53	240	03
04	33	18	26	M	18	24	39	0	-	-	SN	T	M	T	T	29.06	29.76	13.6	29	15.2	29	250	23	310	04
05	27	13*	20*	M	8	17	45	0	-	-	SN	0	M	T	T	29.47	30.22	9.1	31	10.6	22	300	18	280	05
06	44	17	31	M	17	27	34	0	-	-	SN	0	M	T	T	29.75	30.41	8.3	19	9.0	24	190	18	190	06
07	63	41	52	M	29	43	13	0	-	-		0	M	0.0	0.00	29.51	30.14	18.1	22	18.4	46	220	33	230	07
08	58	32	45	M	38	43	20	0	-	-	RA SN PL BR	0	M	T	0.37	29.23	29.89	16.1	24	19.5	44	220	33	210	08
09	35	23	29	M	20	26	36	0	-	-	SN FG+ FZFG BLSN	T	M	1.4	0.14	29.49	30.21	13.1	29	14.6	41	260	32	290	09
10	35	19	27	M	15	23	38	0	-	-		0	M	0.0	0.00	29.79	30.48	2.1	19	8.0	22	300	16	330	10
11	56	33	45	M	27	38	20	0	-	-		0	M	0.0	0.00	29.62	30.29	M	M	14.4	33	220	25	220	11
12	66	33	50	M	38	44	15	0	-	-	RA BR	0	M	0.0	0.06	29.49	30.11	7.9	18	9.4	26	190	21	200	12
13	60	39	50	M	46	49	15	0	-	-	RA BR	0	M	0.0	0.05	29.26	29.93	12.5	23	13.7	39	240	29	230	13
14	61	32	47	M	29	40	18	0	-	-	BR	0	M	0.0	0.00	29.49	30.15	4.3	23	5.8	18	220	15	220	14
15	72	41	57	M	42	48	8	0	-	-		0	M	0.0	0.05	29.43	30.07	2.7	22	4.1	23	220	18	220	15
16	67	49	58	M	51	54	7	0	-	-	FG+ FG BR	0	M	0.0	0.02	29.42	30.10	5.2	23	7.7	20	210	16	210	16
17	69	43	56	M	51	53	9	0	-	-	FG+ FG BR HZ	0	M	0.0	0.00	29.57	30.21	0.8	31	3.0	13	260	9	320	17
18	74	40	57	M	49	53	8	0	-	-	BR	0	M	0.0	0.00	29.49	30.13	4.5	22	4.8	21	220	17	210	18
19	75	48	62	M	53	56	3	0	-	-	FG BR HZ	M	M	M	0.00	29.49	30.13	0.7	18	2.3	18	310	16	310	19
20	77	46	62	M	51	55	3	0	-	-	BR	0	M	0.0	0.00	29.54	30.19	1.6	06	3.1	13	320	10	320	20
21	81*	48	65	M	52	57	0	0	-	-	BR	0	M	0.0	0.00	29.57	30.21	1.4	07	3.5	17	030	15	030	21
22	80	52	66*	M	52	57	0	1	-	-		0	M	0.0	0.00	29.52	30.14	1.7	24	4.2	13	320	10	330	22
23	69	55	62	M	44	52	3	0	-	-		0	M	0.0	0.00	29.46	30.08	15.3	08	15.5	30	080	25	080	23
24	56	44	50	M	41	46	15	0	-	-	RA BR	0	M	0.0	0.52	29.28	29.90	10.2	08	11.3	26	080	21	080	24
25	59	41	50	M	42	45	15	0	-	-	RA FG+ FG BR HZ	0	M	0.0	0.02	29.21	29.87	7.2	26	9.1	25	300	18	300	25
26	42	28	35	M	18	29	30	0	-	-		0	M	0.0	0.00	29.54	30.25	13.9	34	14.4	29	330	23	320	26
27	45	19	32	M	11	M	33	0	-	-		0	M	0.0	0.00	29.61	M	0.5	15	4.6	18	180	12	170	27
28	69	40	55	M	37	46	10	0	-	-	RA	0	M	0.0	0.01	29.05	29.69	13.0	26	16.9	33	310	28	310	28
29	42	35	39	M	28	34	26	0	-	-		0	M	0.0	0.01	29.35	30.05	12.1	32	12.5	29	310	23	300	29
30	48	27	38	M	25	32	27	0	-	-	SN BR UP	T	M	1.2	0.17	29.40	30.04	10.8	07	11.3	30	070	24	070	30
31	46	32	39	M	31	34	26	0	-	-	BR	0	M	T	T	29.28	29.95	6.8	05	9.3	25	040	18	050	31
	M	M	M		34.1	41.1	19.0	0.0	<-----Monthly Averages | Totals----->				M	M	1.59	M	M	3.7	25	10.6	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	589	M	M	M
Cooling:	1	M	M	M

Greatest 24-hr Precipitation: M Date: M
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

	Sea Level Pressure	Date	Time (LST)
Maximum	M	M	M
Minimum	M	M	M

Number of Days with -------->
Max Temp >=90: M
Max Temp <=32: M
Thunderstorms : 0
Min Temp <=32: M
Min Temp <=0 : M
Heavy Fog : 4
Precipitation >=.01 inch: M
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER2

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

NOAA, National Climatic Data Center

Month: 04/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	41	32	37	M	35	37	28	0	-	-	RA DZ PL BR	M	M	M	0.40	29.16	29.82	3.5	25	6.2	18	240	13	250	01
02	52	33	43	M	27	M	22	0	-	-	BR	M	M	M	0.00	M	M	6.6	33	8.1	20	320	16	320	02
03	54	26	40	M	25	35	25	0	-	-		M	M	M	0.00	29.33	29.97	0.1	31	2.6	14	140	10	130	03
04	55	36	46	M	29	38	19	0	-	-		M	M	M	0.00	29.18	29.84	10.4	31	11.5	31	340	25	330	04
05	45	32	39	M	25	33	26	0	-	-		M	M	M	0.00	29.33	30.02	8.2	36	8.6	23	360	18	010	05
06	51	32	42	M	22	34	23	0	-	-		M	M	M	0.00	29.50	30.18	7.8	34	8.2	29	340	16	330	06
07	58	28	43	M	24	36	22	0	-	-		M	M	M	0.00	29.56	30.22	4.5	28	6.5	23	260	17	310	07
08	60	28	44	M	29	38	21	0	-	-		M	M	M	T	29.33	29.96	8.4	27	9.9	41	290	33	300	08
09	56	37	47	M	23	37	18	0	-	-		M	M	M	0.00	29.13	29.77	18.3	28	18.7	47	290	37	290	09
10	49	36	43	M	28	36	22	0	-	-	RA	M	M	M	0.01	29.10	29.78	15.0	29	15.3	38	300	30	300	10
11	47	35	41	M	33	38	24	0	-	-	RA PL BR	M	M	M	0.11	29.33	30.02	9.5	33	10.4	29	360	23	360	11
12	53	31	42	M	29	37	23	0	-	-		M	M	M	0.00	29.52	30.19	5.1	29	7.6	22	220	17	220	12
13	57	28	43	M	29	38	22	0	-	-		M	M	M	0.00	29.58	30.25	5.2	23	5.9	20	220	15	230	13
14	65	38	52	M	37	45	13	0	-	-	RA BR	M	M	M	T	29.43	30.06	9.1	21	9.4	33	230	26	230	14
15	69	53	61	M	53	56	4	0	-	-	RA DZ BR	M	M	M	0.14	29.26	29.89	8.0	22	8.7	26	230	21	240	15
16	82*	54	68*	M	50	58	0	3	-	-		M	M	M	0.00	29.17	29.82	17.2	23	18.5	45	250	33	250	16
17	54	34	44	M	31	40	21	0	-	-		M	M	M	0.00	29.59	30.28	9.6	30	12.3	36	260	29	260	17
18	55	30	43	M	30	37	22	0	-	-		M	M	M	0.00	29.62	30.25	3.2	06	4.9	22	010	14	340	18
19	68	40	54	M	41	49	11	0	-	-		M	M	M	T	29.34	29.97	9.7	22	10.0	26	230	21	210	19
20	78	49	64	M	45	53	1	0	-	-	RA HZ	M	M	M	0.01	29.15	29.76	5.4	25	8.0	33	310	28	300	20
21	54	40	47	M	38	40	18	0	-	-	RA DZ BR	M	M	M	0.33	29.21	29.89	7.5	36	8.2	21	320	17	310	21
22	46	37	42	M	34	38	23	0	-	-	RA DZ	M	M	M	0.02	29.30	29.94	11.3	05	11.6	29	040	22	040	22
23	42	35	39	M	33	36	26	0	-	-	RA SN BR UP	M	M	M	1.82	28.87	29.48	15.3	35	17.2	36	310	28	330	23
24	44	34	39	M	32	36	26	0	-	-	RA SN BR UP	M	M	M	0.17	28.75	29.44	14.7	27	15.4	39	270	32	270	24
25	55	33	44	M	28	38	21	0	-	-		M	M	M	0.00	29.15	29.81	5.9	28	8.1	28	290	22	280	25
26	59	36	48	M	33	40	17	0	-	-	RA	M	M	M	0.03	29.08	29.73	4.7	31	8.5	33	320	26	320	26
27	47	32	40	M	24	33	25	0	-	-	SN	M	M	M	T	29.41	30.12	11.6	32	12.4	33	310	28	310	27
28	48	25*	37*	M	19	32	28	0	-	-		M	M	M	0.00	29.59	30.27	2.6	33	3.2	16	360	10	350	28
29	57	28	43	M	19	34	22	0	-	-		M	M	M	0.00	29.62	30.29	4.6	31	5.2	23	310	20	310	29
30	53	30	42	M	33	40	23	0	-	-	RA BR	M	M	M	0.42	29.51	30.13	4.4	10	6.1	23	130	15	150	30
	55.1	34.7	44.9		31.3	39.4	19.9	0.1	<-----Monthly Averages | Totals----->				M	M	3.46	29.31	29.97	5.1	29	9.6	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	596	M	M	M
Cooling:	3	M	M	M

Greatest 24-hr Precipitation: 1.90 Date: 23-24
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

Sea Level	Pressure	Date	Time (LST)
Maximum	30.39	18	0632
Minimum	29.29	24	0509

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 0
Min Temp <=32: 13
Min Temp <=0 : 0
Heavy Fog : 0
Precipitation >=.01 inch: 11
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

NOAA, National Climatic Data Center

Month: 05/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	55	43	49*	M	46	48	16	0	-	-	RA BR HZ	M	M	M	0.11	29.34	30.02	3.7	24	5.7	17	220	14	230	01
02	73	45	59	M	51	54	6	0	-	-	RA BR HZ VCTS	M	M	M	T	29.33	29.97	1.7	12	5.0	20	330	16	330	02
03	82	47	65	M	56	59	0	0	-	-	RA FG+ BR HZ	M	M	M	0.01	29.34	29.97	1.5	21	5.3	29	330	23	320	03
04	74	56	65	M	57	60	0	0	-	-	BR	M	M	M	0.02	29.31	29.94	3.0	26	9.2	22	230	17	230	04
05	62	46	54	M	39	47	11	0	-	-		M	M	M	0.00	29.44	30.08	11.0	06	11.2	24	070	20	050	05
06	67	39	53	M	33	46	12	0	-	-	RA	M	M	M	0.00	29.46	30.11	5.8	06	6.1	22	070	17	060	06
07	65	52	59	M	48	53	6	0	-	-	RA BR	M	M	M	0.27	29.32	29.92	4.6	09	5.6	17	080	12	080	07
08	65	50	58	M	55	57	7	0	-	-	RA DZ BR HZ	M	M	M	1.41	29.11	29.75	4.3	24	6.0	15	220	10	330	08
09	67	49	58	M	46	51	7	0	-	-	RA BR	M	M	M	0.01	29.09	29.72	8.9	27	11.5	41	290	30	310	09
10	61	47	54	M	35	44	11	0	-	-		M	M	M	0.00	29.13	29.80	13.2	31	13.7	30	320	23	310	10
11	70	46	58	M	36	47	7	0	-	-		M	M	M	0.00	29.39	30.06	9.7	28	11.2	24	290	20	310	11
12	76	48	62	M	44	53	3	0	-	-	RA	M	M	M	T	29.53	30.17	10.1	23	10.4	35	250	26	240	12
13	67	54	61	M	46	53	4	0	-	-		M	M	M	T	29.52	30.16	3.1	35	4.2	15	360	12	350	13
14	73	49	61	M	49	55	4	0	-	-	BR	M	M	M	0.00	29.41	30.05	1.6	05	3.2	15	340	13	350	14
15	76	49	63	M	46	54	2	0	-	-	BR HZ	M	M	M	0.00	29.31	29.93	5.4	21	5.5	20	220	15	200	15
16	68	43	56	M	42	49	9	0	-	-	RA	M	M	M	0.11	29.27	29.94	8.8	29	11.1	33	300	25	290	16
17	63	37*	50	M	34	44	15	0	-	-		M	M	M	0.00	29.52	30.18	0.9	34	3.6	16	040	12	360	17
18	73	40	57	M	40	49	8	0	-	-		M	M	M	0.00	29.52	30.17	2.8	05	3.7	17	040	13	020	18
19	83	49	66	M	46	56	0	1	-	-		M	M	M	0.00	29.51	30.14	1.6	22	1.9	13	240	10	210	19
20	87	53	70	M	51	60	0	5	-	-	HZ	M	M	M	0.00	29.52	30.13	2.8	06	3.6	16	030	13	020	20
21	82	62	72	M	56	62	0	7	-	-	VCTS	M	M	M	0.00	29.38	29.98	2.3	18	6.7	20	070	17	070	21
22	75	59	67	M	56	60	0	2	-	-		M	M	M	0.00	29.26	29.88	2.8	29	5.3	15	290	10	220	22
23	80	58	69	M	57	62	0	4	-	-	BR HZ	M	M	M	0.00	29.29	29.93	4.2	12	5.4	18	110	14	090	23
24	85	59	72	M	58	64	0	7	-	-	HZ	M	M	M	0.00	29.33	29.95	7.2	18	8.1	23	200	17	180	24
25	86	66	76*	M	61	67	0	11	-	-		M	M	M	T	29.33	29.95	11.0	22	13.6	36	250	26	240	25
26	78	60	69	M	50	59	0	4	-	-		M	M	M	0.00	29.52	30.15	3.2	01	3.9	15	330	13	330	26
27	82	56	69	M	52	58	0	4	-	-	RA	M	M	M	T	29.47	30.08	0.6	02	4.5	25	180	21	170	27
28	88*	60	74	M	63	67	0	9	-	-	BR	M	M	M	0.00	29.26	29.86	8.2	22	8.5	28	250	21	230	28
29	84	63	74	M	64	68	0	9	-	-	BR HZ VCTS	M	M	M	T	29.10	29.70	11.9	23	12.8	33	290	28	290	29
30	72	56	64	M	50	57	1	0	-	-	BR	M	M	M	0.00	29.13	29.77	3.5	32	5.5	17	220	14	240	30
31	67	49	58	M	42	50	7	0	-	-		M	M	M	0.00	29.29	29.95	4.0	36	6.4	17	320	14	010	31
	73.7	51.3	62.5		48.7	55.3	4.4	2.0	<-----Monthly Averages | Totals----->				M	M	1.94	29.35	29.98	1.8	26	7.0	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	136	M	M	M
Cooling:	63	M	M	M

Greatest 24-hr Precipitation: 1.68 Date: 07-08
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

	Sea Level	Pressure	Date	Time (LST)
Maximum	30.23	17	1053	
Minimum	29.66	29	1653	

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 0
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 1
Precipitation >=.01 inch: 7
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

NOAA, National Climatic Data Center

Month: 06/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	62	52	57*	M	52	54	8	0	-	-	RA BR	M	M	M	0.63	29.14	29.73	9.5	11	14.3	31	230	25	230	01
02	67	52	60	M	47	53	5	0	-	-	RA	M	M	M	T	29.03	29.67	15.4	23	15.6	35	230	26	230	02
03	M	M	M	M	M	M	M	M	-	-	RA	M	M	M	0.29	29.04	M	M	M	M	24	230	17	230	03
04	M	M	M	M	M	M	M	M	-	-	RA BR	M	M	M	T	29.15	M	M	M	9.8	22	360	16	030	04
05	70	50	60	M	47	53	5	0	-	-		M	M	M	0.00	29.32	29.97	6.4	04	6.8	24	010	15	020	05
06	74	49	62	M	51	56	3	0	-	-		M	M	M	0.04	29.34	29.97	4.9	22	6.3	23	290	18	290	06
07	77	51	64	M	51	57	1	0	-	-	RA	M	M	M	0.01	29.34	29.97	5.1	25	6.6	24	270	21	270	07
08	80	54	67	M	52	59	0	2	-	-	RA	M	M	M	0.00	29.29	29.91	9.1	24	10.8	26	300	20	230	08
09	72	61	67	M	59	61	0	2	-	-	RA BR	M	M	M	0.14	29.26	29.90	6.9	22	7.2	20	210	15	230	09
10	86	60	73	M	58	64	0	8	-	-		M	M	M	0.00	29.39	30.02	4.4	21	4.5	17	220	13	220	10
11	88	63	76	M	61	66	0	11	-	-	RA BR HZ	M	M	M	0.08	29.38	29.98	7.6	20	8.2	26	240	22	240	11
12	82	58	70	M	62	65	0	5	-	-	RA BR HZ	M	M	M	0.23	29.23	29.85	6.5	25	11.4	35	340	28	290	12
13	69	48*	59	M	45	52	6	0	-	-		M	M	M	0.00	29.49	30.14	5.6	33	6.8	26	320	21	310	13
14	77	50	64	M	49	56	1	0	-	-		M	M	M	0.00	29.59	30.23	5.6	07	6.5	22	010	17	060	14
15	84	55	70	M	54	61	0	5	-	-		M	M	M	0.00	29.59	30.22	2.8	10	5.8	18	050	16	030	15
16	85	64	75	M	57	64	0	10	-	-		M	M	M	0.00	29.55	30.16	4.5	20	5.6	17	170	13	110	16
17	85	66	76	M	60	65	0	11	-	-	RA	M	M	M	0.03	29.33	29.93	9.5	19	10.1	23	190	18	230	17
18	82	66	74	M	61	66	0	9	-	-	TS TSRA HZ	M	M	M	0.07	29.26	29.88	10.4	20	10.7	23	210	18	220	18
19	86	70	78	M	65	70	0	13	-	-		M	M	M	0.01	29.34	29.96	13.1	22	13.5	29	240	23	230	19
20	91*	73	82*	M	64	70	0	17	-	-		M	M	M	0.00	29.40	30.01	10.9	22	11.2	31	230	24	230	20
21	90	70	80	M	63	69	0	15	-	-	RA	M	M	M	0.02	29.27	29.86	10.6	24	12.5	37	230	26	240	21
22	80	64	72	M	59	64	0	7	-	-	RA	M	M	M	0.01	29.26	29.88	5.5	29	7.6	21	330	16	250	22
23	80	55	68	M	54	60	0	3	-	-		M	M	M	0.00	29.36	29.99	3.4	27	5.7	17	320	14	240	23
24	78	61	70	M	55	61	0	5	-	-	TSRA RA BR	M	M	M	0.02	29.34	29.94	4.7	21	6.6	M	M	11	210	24
25	70	61	66	M	49	56	0	1	-	-		M	M	M	0.00	29.26	29.89	14.0	34	14.2	33	340	25	330	25
26	78	53	66	M	48	56	0	1	-	-		M	M	M	0.00	29.26	29.88	9.5	33	10.1	30	310	22	320	26
27	76	55	66	M	54	60	0	1	-	-	RA	M	M	M	T	29.25	29.87	6.4	27	7.7	29	280	22	290	27
28	88	64	76	M	60	66	0	11	-	-		M	M	M	0.00	29.14	29.73	8.2	22	8.4	25	240	20	240	28
29	89	68	79	M	60	67	0	14	-	-	BR	M	M	M	0.00	29.10	29.71	8.8	25	9.9	31	220	24	230	29
30	86	64	75	M	61	67	0	10	-	-		M	M	M	0.00	29.11	29.73	10.0	22	10.4	29	230	23	220	30
	79.7	59.2	69.5		55.6	61.4	M	M	<-----Monthly Averages | Totals----->				M	M	1.58	29.29	29.93	4.6	23	9.1	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	M	M	M	M
Cooling:	M	M	M	M

Greatest 24-hr Precipitation: 0.63 Date: 01
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

Sea Level	Pressure	Date	Time (LST)
Maximum	30.27	14	0953
Minimum	29.52	01	1953

Number of Days with -------->
Max Temp >=90: 2
Max Temp <=32: 0
Thunderstorms : 3
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 0
Precipitation >=.01 inch: 13
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

NOAA, National Climatic Data Center

Month: 07/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	88	63	76	M	53	62	0	11	-	-		M	M	M	0.00	29.23	29.87	9.7	31	10.3	28	280	23	320	01
02	88	58	73	M	54	62	0	8	-	-		M	M	M	0.00	29.35	29.97	3.8	25	5.7	25	320	17	330	02
03	85	60	73	M	63	66	0	8	-	-	TSRA RA BR	M	M	M	0.16	29.27	29.87	7.0	21	7.7	33	250	26	240	03
04	89	69	79	M	68	72	0	14	-	-		M	M	M	0.00	29.18	29.79	8.5	23	10.7	28	250	22	230	04
05	87	67	77	M	64	69	0	12	-	-		M	M	M	0.00	29.24	29.87	1.4	01	4.4	18	010	12	350	05
06	94	71	83	M	69	73	0	18	-	-	BR	M	M	M	0.00	29.27	29.89	5.4	23	6.6	25	280	17	240	06
07	80	67	74	M	65	68	0	9	-	-		M	M	M	0.29	29.26	29.88	2.9	02	4.6	30	350	22	350	07
08	84	64	74	M	60	65	0	9	-	-		M	M	M	0.00	29.31	29.94	5.1	36	5.9	25	020	14	010	08
09	81	59	70	M	53	61	0	5	-	-		M	M	M	T	29.37	30.00	2.7	02	4.3	22	340	17	340	09
10	82	59	71	M	50	60	0	6	-	-		M	M	M	0.00	29.41	30.05	4.1	01	4.7	20	030	14	350	10
11	85	58	72	M	51	60	0	7	-	-	HZ	M	M	M	0.00	29.51	30.13	3.2	05	4.5	20	350	16	350	11
12	90	62	76	M	53	63	0	11	-	-		M	M	M	0.00	29.49	30.11	1.7	05	3.9	20	020	14	010	12
13	89	64	77	M	61	67	0	12	-	-	HZ	M	M	M	0.00	29.50	30.12	6.3	22	6.9	21	220	15	240	13
14	89	69	79	M	62	68	0	14	-	-		M	M	M	0.00	29.49	30.09	2.6	18	5.6	18	020	14	030	14
15	85	73	79	M	67	70	0	14	-	-	RA HZ	M	M	M	0.02	29.38	29.98	8.6	22	8.9	21	220	17	210	15
16	91	69	80	M	63	69	0	15	-	-	BR	M	M	M	0.00	29.28	29.89	6.1	25	8.5	23	230	20	230	16
17	94*	77	86*	M	68	73	0	21	-	-		M	M	M	T	29.13	29.74	13.5	23	14.9	35	240	26	230	17
18	85	67	76	M	61	67	0	11	-	-		M	M	M	0.00	29.26	29.89	5.3	02	6.8	17	030	13	040	18
19	78	64	71	M	58	63	0	6	-	-	RA	M	M	M	T	29.35	29.97	7.6	07	7.8	23	080	18	060	19
20	77	62	70	M	55	60	0	5	-	-	RA	M	M	M	0.04	29.39	30.02	8.3	06	8.7	24	070	21	070	20
21	83	57	70*	M	58	63	0	5	-	-	BR	M	M	M	0.00	29.42	30.05	6.3	20	6.7	23	310	18	280	21
22	87	68	78	M	66	69	0	13	-	-	TSRA	M	M	M	0.37	29.41	30.03	9.1	21	9.5	30	240	22	240	22
23	89	72	81	M	67	72	0	16	-	-	VCTS	M	M	M	0.02	29.26	29.85	13.6	23	14.4	44	230	33	250	23
24	84	63	74	M	58	65	0	9	-	-		M	M	M	0.00	29.18	29.80	12.4	32	13.1	32	360	25	350	24
25	84	59	72	M	54	62	0	7	-	-	RA	M	M	M	0.13	29.26	29.86	2.9	22	5.7	22	220	17	210	25
26	81	67	74	M	68	70	0	9	-	-	TSRA RA BR	M	M	M	0.30	29.00	29.62	7.5	23	9.9	38	290	30	300	26
27	81	68	75	M	63	66	0	10	-	-		M	M	M	0.01	29.18	29.82	6.4	03	6.9	22	140	14	030	27
28	83	62	73	M	59	65	0	8	-	-	RA	M	M	M	T	29.33	29.96	4.6	05	5.2	22	020	16	020	28
29	85	57*	71	M	56	63	0	6	-	-		M	M	M	0.00	29.40	30.02	2.1	26	3.9	17	310	14	320	29
30	85	64	75	M	57	64	0	10	-	-		M	M	M	0.00	29.38	29.99	5.3	21	6.2	21	210	15	220	30
31	89	66	78	M	63	68	0	13	-	-	RA	M	M	M	T	29.24	29.85	5.2	20	8.1	24	320	18	320	31
	85.5	64.7	75.1		60.2	66.0	0.0	10.4	<-----Monthly Averages | Totals----->				M	M	1.34	29.31	29.93	2.1	25	7.5	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	0	M	M	M
Cooling:	322	M	M	M

Greatest 24-hr Precipitation: 0.39 Date: 25-26
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

	Sea Level	Pressure	Date	Time (LST)
Maximum	30.16	11	1153	
Minimum	29.57	26	0353	

Number of Days with -------->
Max Temp >=90: 4
Max Temp <=32: 0
Thunderstorms : 3
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 0
Precipitation >=.01 inch: 9
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

NOAA, National Climatic Data Center

Month: 08/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	85	65	75	M	63	67	0	10	-	-	BR	M	M	M	0.00	29.23	29.85	3.7	30	6.5	20	310	14	330	01
02	85	66	76	M	62	67	0	11	-	-		M	M	M	0.00	29.24	29.86	7.0	22	8.1	22	230	17	230	02
03	92	71	82	M	66	71	0	17	-	-	RA HZ	M	M	M	T	29.33	29.95	1.6	10	5.3	20	030	16	030	03
04	95*	69	82*	M	67	72	0	17	-	-	TSRA BR HZ	M	M	M	0.13	29.38	29.97	7.3	20	8.5	23	180	18	180	04
05	83	68	76	M	67	70	0	11	-	-	TSRA RA BR	M	M	M	0.34	29.26	29.89	11.5	24	14.6	40	220	31	230	05
06	79	58	69	M	53	60	0	4	-	-		M	M	M	0.00	29.44	30.07	5.9	29	8.6	20	330	16	330	06
07	84	58	71	M	56	63	0	6	-	-		M	M	M	0.00	29.34	29.95	8.7	22	9.2	28	240	22	220	07
08	87	63	75	M	64	68	0	10	-	-	VCTS	M	M	M	T	29.29	29.90	4.2	21	5.6	23	220	18	220	08
09	77	67	72	M	65	67	0	7	-	-	RA BR	M	M	M	0.01	29.26	29.86	3.5	33	5.7	15	280	12	290	09
10	79	67	73	M	62	66	0	8	-	-	RA BR	M	M	M	T	29.10	29.70	3.0	19	5.6	14	220	12	260	10
11	71	63	67	M	60	63	0	2	-	-	RA BR	M	M	M	0.20	29.13	29.77	11.0	20	11.2	36	220	24	220	11
12	77	62	70	M	62	64	0	5	-	-	RA BR	M	M	M	0.93	29.26	29.90	7.7	24	8.1	26	310	20	320	12
13	81	65	73	M	58	64	0	8	-	-	RA	M	M	M	0.02	29.34	29.96	5.9	24	6.3	24	100	15	240	13
14	78	62	70	M	62	64	0	5	-	-	RA BR	M	M	M	0.07	29.27	29.89	1.5	02	2.8	20	350	16	340	14
15	80	58	69	M	59	63	0	4	-	-	BR VCTS	M	M	M	0.00	29.28	29.92	1.6	27	2.9	28	090	12	260	15
16	83	58	71	M	59	64	0	6	-	-	BR	M	M	M	0.00	29.28	29.88	6.3	22	7.3	25	220	21	230	16
17	76	56	66	M	56	62	0	1	-	-	RA	M	M	M	0.03	29.18	29.81	9.4	28	11.1	29	220	24	290	17
18	73	51	62*	M	47	54	3	0	-	-		M	M	M	0.00	29.33	29.97	3.3	30	4.4	20	290	14	320	18
19	78	52	65	M	48	56	0	0	-	-		M	M	M	0.00	29.30	29.92	0.7	12	2.7	14	350	10	360	19
20	75	55	65	M	50	57	0	0	-	-		M	M	M	0.00	29.28	29.92	3.9	34	4.6	20	310	15	330	20
21	78	49*	64	M	48	56	1	0	-	-		M	M	M	0.00	29.41	30.05	4.8	22	5.4	25	230	14	220	21
22	80	55	68	M	55	61	0	3	-	-		M	M	M	0.00	29.47	30.10	5.4	23	5.6	21	250	17	220	22
23	85	55	70	M	55	62	0	5	-	-	BR	M	M	M	0.00	29.49	30.12	5.3	22	5.7	21	240	16	240	23
24	88	57	73	M	56	63	0	8	-	-	BR HZ	M	M	M	0.00	29.50	30.13	2.7	22	3.9	21	250	14	250	24
25	90	62	76	M	57	65	0	11	-	-	HZ	M	M	M	0.00	29.52	30.15	1.6	17	3.6	18	160	13	180	25
26	85	64	75	M	60	66	0	10	-	-		M	M	M	0.00	29.54	30.15	5.9	19	6.4	22	190	17	180	26
27	74	69	72	M	66	68	0	7	-	-	RA BR	M	M	M	0.21	29.36	29.98	9.1	21	9.7	21	220	17	210	27
28	78	58	68	M	M	M	0	3	-	-		M	M	M	0.00	29.34	M	M	M	9.7	23	290	17	010	28
29	74	51	63	M	48	56	2	0	-	-		M	M	M	0.00	29.42	30.05	3.4	30	5.8	20	320	13	320	29
30	81	54	68	M	55	61	0	3	-	-		M	M	M	0.00	29.41	30.04	9.8	22	10.0	28	220	23	220	30
31	88	65	77	M	61	67	0	12	-	-		M	M	M	0.00	29.33	29.94	11.0	23	12.7	31	220	24	240	31
	81.3	60.4	70.9		58.2	63.6	0.2	6.3	<-----Monthly Averages | Totals----->				M	M	1.94	29.33	29.96	4.3	23	7.0	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	6	M	M	M
Cooling:	194	M	M	M

Greatest 24-hr Precipitation: 1.12 Date: 11-12
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

	Sea Level	Pressure	Date	Time (LST)
Maximum	30.23	26	0948	
Minimum	29.65	10	1817	

Number of Days with -------->
Max Temp >=90: 3
Max Temp <=32: 0
Thunderstorms : 2
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 0
Precipitation >=.01 inch: 9
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

NOAA, National Climatic Data Center

Month: 09/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	85	62	74*	M	55	62	0	9	-	-		M	M	M	0.00	29.44	30.06	3.2	04	4.5	21	020	18	020	01
02	84	56	70	M	55	61	0	5	-	-		M	M	M	0.00	29.41	30.04	4.8	04	5.4	20	030	16	050	02
03	88*	58	73	M	63	67	0	8	-	-		M	M	M	0.00	29.35	29.97	1.7	09	4.7	18	020	15	010	03
04	80	65	73	M	67	69	0	8	-	-	RA BR VCTS	M	M	M	1.46	29.24	29.85	1.3	31	6.5	29	010	22	010	04
05	82	62	72	M	64	67	0	7	-	-	FG+ FG BR	M	M	M	0.00	29.23	29.85	1.1	24	2.2	13	250	10	250	05
06	80	62	71	M	63	67	0	6	-	-	BR	M	M	M	0.00	29.21	29.84	1.4	29	3.7	15	340	12	330	06
07	82	59	71	M	61	65	0	6	-	-	BR	M	M	M	0.00	29.23	29.82	5.8	20	6.6	22	210	17	220	07
08	73	55	64	M	57	60	1	0	-	-	TSRA RA BR VCTS	M	M	M	1.98	28.98	29.61	7.5	28	10.4	40	340	31	340	08
09	68	50	59	M	47	54	6	0	-	-		M	M	M	0.00	29.25	29.91	6.1	32	7.4	18	320	16	340	09
10	69	49	59	M	43	51	6	0	-	-		M	M	M	0.00	29.48	30.13	5.5	33	5.9	24	280	17	290	10
11	74	46	60	M	49	55	5	0	-	-		M	M	M	0.00	29.57	30.22	6.7	23	7.0	24	220	18	250	11
12	79	58	69	M	54	60	0	4	-	-		M	M	M	0.00	29.60	30.24	7.9	20	8.1	26	310	18	240	12
13	82	56	69	M	57	63	0	4	-	-	FU	M	M	M	0.00	29.60	30.22	7.5	21	7.8	22	220	17	230	13
14	75	50	63	M	57	59	2	0	-	-	RA BR	M	M	M	0.28	29.52	30.15	5.1	31	6.7	29	300	22	300	14
15	68	47	58	M	49	53	7	0	-	-		M	M	M	0.00	29.56	30.20	6.2	29	6.8	24	290	15	330	15
16	73	46	60	M	50	55	5	0	-	-		M	M	M	0.00	29.47	30.09	7.2	23	7.3	26	220	21	240	16
17	74	56	65	M	51	57	0	0	-	-		M	M	M	0.00	29.34	29.95	5.9	20	6.5	24	230	17	230	17
18	67	47	57	M	55	57	8	0	-	-	RA BR	M	M	M	0.19	29.00	29.64	6.2	24	11.2	32	310	25	300	18
19	60	44	52	M	40	46	13	0	-	-		M	M	M	0.00	29.40	30.08	5.4	24	8.0	21	220	17	300	19
20	70	45	58	M	42	51	7	0	-	-		M	M	M	0.00	29.37	29.98	9.5	18	10.4	29	210	23	210	20
21	69	57	63	M	51	57	2	0	-	-	RA BR	M	M	M	T	29.26	29.88	4.9	23	6.4	28	250	22	250	21
22	63	47	55	M	47	52	10	0	-	-	RA BR	M	M	M	0.69	29.14	29.79	7.5	26	9.0	25	290	20	290	22
23	59	43	51	M	39	45	14	0	-	-		M	M	M	0.00	29.41	30.08	10.5	27	11.1	26	270	21	270	23
24	60	38*	49*	M	38	46	16	0	-	-		M	M	M	0.00	29.44	30.08	12.1	23	12.7	35	240	29	240	24
25	71	58	65	M	46	54	0	0	-	-		M	M	M	0.00	29.32	29.95	15.3	22	15.5	31	210	24	220	25
26	66	53	60	M	53	57	5	0	-	-	DZ BR	M	M	M	T	29.33	29.99	3.6	25	7.6	29	230	20	220	26
27	65	43	54	M	42	47	11	0	-	-		M	M	M	0.00	29.56	30.21	5.0	05	5.8	20	040	16	030	27
28	62	45	54	M	43	48	11	0	-	-		M	M	M	0.00	29.47	30.10	3.9	03	4.7	21	360	16	050	28
29	63	41	52	M	45	49	13	0	-	-	RA	M	M	M	0.00	29.37	30.01	2.1	01	3.5	16	060	14	060	29
30	61	50	56	M	47	51	9	0	-	-	RA	M	M	M	0.06	29.26	29.90	5.0	33	6.3	17	350	13	290	30
	71.7	51.6	61.7		51.0	56.2	5.0	1.9	<-----Monthly Averages | Totals----->				M	M	4.66	29.36	29.99	3.3	25	7.3	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	151	M	M	M
Cooling:	57	M	M	M

Greatest 24-hr Precipitation: 1.98 Date: 08
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

Sea Level	Pressure	Date	Time (LST)
Maximum	30.27	13	1053
Minimum	29.42	08	0753

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 1
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 1
Precipitation >=.01 inch: 6
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

NOAA, National Climatic Data Center

Month: 10/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	65	48	57	M	47	52	8	0	-	-		M	M	M	0.00	29.25	29.89	5.3	25	6.9	20	210	15	240	01
02	66	52	59	M	54	56	6	0	-	-	RA DZ BR	M	M	M	0.13	29.26	29.91	4.8	08	5.5	14	020	10	060	02
03	70	60	65	M	60	62	0	0	-	-	DZ BR HZ	M	M	M	0.01	29.36	30.02	3.2	20	6.6	20	220	15	220	03
04	72	58	65	M	54	58	0	0	-	-		M	M	M	0.00	29.46	30.07	10.6	22	11.1	35	230	28	230	04
05	69	49	59	M	53	56	6	0	-	-	RA BR	M	M	M	0.20	29.33	29.95	13.2	24	13.8	39	240	29	240	05
06	55	45	50	M	38	44	15	0	-	-	RA BR	M	M	M	0.46	29.27	29.94	13.5	26	13.8	32	280	25	270	06
07	49	36	43	M	37	41	22	0	-	-	RA	M	M	M	0.05	29.41	30.08	2.4	26	3.4	15	250	13	280	07
08	52	37	45	M	38	42	20	0	-	-	RA	M	M	M	T	29.53	30.20	4.6	18	5.3	17	230	14	230	08
09	57	35	46	M	37	42	19	0	-	-		M	M	M	0.00	29.47	30.11	4.3	18	5.3	23	230	17	230	09
10	54	42	48	M	38	43	17	0	-	-	RA BR	M	M	M	0.07	29.23	29.89	11.1	25	13.6	36	200	29	200	10
11	55	34	45	M	33	41	20	0	-	-	RA	M	M	M	T	29.44	30.10	14.8	25	16.3	43	240	33	220	11
12	47	29	38*	M	29	36	27	0	-	-	RA	M	M	M	0.04	29.64	30.34	7.5	33	8.4	26	300	22	310	12
13	57	26*	42	M	31	38	23	0	-	-	RA BR	M	M	M	0.10	29.64	30.26	6.1	17	7.3	28	200	21	210	13
14	74	56	65*	M	56	60	0	0	-	-	RA BR	M	M	M	0.45	29.18	29.77	14.2	21	14.4	47	190	36	200	14
15	67	44	56	M	43	48	9	0	-	-	RA	M	M	M	0.01	29.00	29.66	18.6	25	20.1	51	240	40	230	15
16	52	39	46	M	36	41	19	0	-	-		M	M	M	0.00	29.25	29.91	6.9	28	7.6	24	240	16	310	16
17	67	36	52	M	41	47	13	0	-	-	RA	M	M	M	T	29.20	29.83	M	M	5.6	18	180	15	190	17
18	69	47	58	M	44	50	7	0	-	-	RA	M	M	M	0.43	29.10	29.73	8.6	16	10.0	39	270	33	270	18
19	65	38	52	M	44	48	13	0	-	-	MIFG BR	M	M	M	0.12	29.08	29.71	1.4	09	5.5	25	240	21	250	19
20	53	47	50	M	43	46	15	0	-	-	RA	M	M	M	0.16	29.03	29.70	12.5	23	13.2	30	210	24	220	20
21	60	44	52	M	44	47	13	0	-	-	BR	M	M	M	T	29.33	30.01	10.7	25	11.0	24	270	21	280	21
22	64	42	53	M	44	48	12	0	-	-	RA	M	M	M	0.00	29.46	30.10	3.9	23	5.2	15	230	13	210	22
23	54	51	53	M	51	51	12	0	-	-	RA DZ BR	M	M	M	0.80	29.40	30.05	7.4	08	8.0	18	100	14	070	23
24	60	50	55	M	53	53	10	0	-	-	RA DZ BR	M	M	M	0.03	29.44	30.09	4.2	07	4.6	16	080	13	080	24
25	78*	49	64	M	52	57	1	0	-	-	FG+ FG BR	M	M	M	0.00	29.39	30.02	4.4	20	5.6	25	190	18	210	25
26	71	46	59	M	49	53	6	0	-	-	RA	M	M	M	0.03	29.41	30.07	4.1	28	12.0	28	240	21	330	26
27	47	42	45	M	43	44	20	0	-	-	RA BR	M	M	M	0.90	29.44	30.10	11.4	01	11.7	24	360	18	360	27
28	42	41	42	M	39	41	23	0	-	-	RA DZ BR	M	M	M	0.33	29.41	30.05	11.1	02	11.2	24	030	18	020	28
29	45	41	43	M	39	41	22	0	-	-	RA DZ BR	M	M	M	1.46	29.10	29.68	19.4	36	19.4	46	360	36	360	29
30	56	43	50	M	44	47	15	0	-	-	RA BR	M	M	M	0.74	28.59	29.25	12.7	06	14.9	47	030	37	030	30
31	46	40	43	M	39	42	22	0	-	-	RA	M	M	M	0.05	28.79	29.44	4.5	23	5.8	21	280	17	280	31
	59.3	43.5	51.4		43.6	47.6	13.4	0.0	<-----Monthly Averages | Totals----->				M	M	6.57	29.29	29.93	3.3	25	9.8	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	415	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: 2.02 Date: 29-30
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

	Sea Level	Pressure	Date	Time (LST)
Maximum	30.47	12	2353	
Minimum	29.11	30	0354	

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 0
Min Temp <=32: 2
Min Temp <=0 : 0
Heavy Fog : 1
Precipitation >=.01 inch: 21
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

NOAA, National Climatic Data Center

Month: 11/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	44	40	42	M	38	41	23	0	-	-	RA BR	M	M	M	0.15	28.90	29.57	13.3	26	13.4	29	250	23	260	01
02	41	36	39	M	32	36	26	0	-	-	RA DZ BR	M	M	M	0.14	29.10	29.80	11.7	30	12.3	25	310	20	310	02
03	42	36	39	M	29	35	26	0	-	-	RA	M	M	M	T	29.38	30.06	13.0	32	13.5	28	320	22	320	03
04	36	34	35	M	26	31	30	0	-	-	SN	M	M	M	T	29.46	30.14	7.6	33	8.0	16	300	14	320	04
05	36	33	35	M	23	30	30	0	-	-	SN	M	M	M	T	29.51	30.20	5.3	35	5.5	14	340	12	350	05
06	42	30	36	M	22	30	29	0	-	-		M	M	M	0.00	29.50	30.17	4.4	10	6.2	20	110	14	080	06
07	43	25	34	M	23	30	31	0	-	-		M	M	M	0.00	29.42	30.11	6.8	06	7.4	21	060	18	050	07
08	40	22*	31	M	21	28	34	0	-	-		M	M	M	0.00	29.47	30.15	2.7	33	3.3	16	330	13	340	08
09	48	27	38	M	34	38	27	0	-	-	RA BR HZ	M	M	M	0.01	29.50	30.18	6.5	25	6.7	21	250	16	250	09
10	53	40	47	M	40	44	18	0	-	-	BR HZ	M	M	M	T	29.57	30.23	4.8	10	5.8	16	070	14	070	10
11	67	48	58*	M	38	49	7	0	-	-		M	M	M	0.00	29.54	30.18	10.0	20	10.8	32	220	24	220	11
12	70*	40	55	M	42	50	10	0	-	-	RA BR	M	M	M	0.35	29.40	30.05	15.0	21	17.6	36	240	29	260	12
13	40	34	37	M	23	31	28	0	-	-	SN	M	M	M	T	29.70	30.42	10.2	28	10.8	37	260	29	260	13
14	41	30	36	M	26	32	29	0	-	-		M	M	M	0.00	29.91	30.58	2.4	06	2.8	13	030	10	030	14
15	47	26	37	M	26	32	28	0	-	-		M	M	M	0.00	29.74	30.41	1.9	05	2.4	12	040	10	030	15
16	48	26	37	M	29	33	28	0	-	-	BR	M	M	M	0.00	29.75	30.46	0.2	01	0.5	8	190	7	250	16
17	48	27	38	M	32	35	27	0	-	-	FG+ FZFG MIFG BR HZ	M	M	M	0.00	29.93	30.63	0.9	06	1.9	9	010	8	020	17
18	53	28	41	M	31	35	24	0	-	-	BR	M	M	M	0.00	29.91	30.58	3.4	08	3.6	13	060	10	070	18
19	52	26	39	M	31	35	26	0	-	-	BR	M	M	M	0.00	29.75	30.39	1.2	07	1.8	9	020	8	010	19
20	52	30	41	M	33	37	24	0	-	-	FZFG BR HZ	M	M	M	0.00	29.52	30.19	1.4	05	1.8	8	080	7	360	20
21	52	25	39	M	31	34	26	0	-	-	FG+ FZFG BR HZ	M	M	M	0.00	29.55	30.24	M	M	0.6	9	260	7	320	21
22	57	28	43	M	34	39	22	0	-	-	FG+ FZFG BR	M	M	M	0.00	29.48	30.13	5.9	21	6.2	23	220	18	220	22
23	53	33	43	M	34	41	22	0	-	-	RA SN BR	M	M	M	0.02	29.11	29.75	18.0	23	20.2	43	230	33	240	23
24	38	31	35	M	22	29	30	0	-	-		M	M	M	T	29.21	29.90	M	M	18.6	35	300	29	300	24
25	34	29	32	M	23	29	33	0	-	-	SN BR	M	M	M	0.01	29.23	29.90	12.3	26	12.5	29	250	21	250	25
26	38	27	33	M	22	29	32	0	-	-		M	M	M	0.00	29.41	30.13	12.8	26	12.9	26	260	21	260	26
27	37	24	31*	M	19	26	34	0	-	-		M	M	M	T	29.60	30.29	4.6	27	5.1	15	280	13	300	27
28	38	26	32	M	22	29	33	0	-	-	SN	M	M	M	T	29.55	30.24	10.9	26	11.0	30	260	24	250	28
29	46	27	37	M	26	33	28	0	-	-		M	M	M	0.00	29.58	30.26	11.7	25	13.6	33	250	26	240	29
30	36	28	32	M	24	28	33	0	-	-	SN BR BLSN	M	M	M	0.03	29.68	30.37	14.8	08	15.1	26	080	21	080	30
	45.7	30.5	38.1		28.5	34.3	26.6	0.0	<-----Monthly Averages | Totals----->				M	M	0.71	29.51	30.19	3.4	26	8.4	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	798	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: 0.35 Date: 12
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

Sea Level	Pressure	Date	Time (LST)
Maximum	30.66	17	2153
Minimum	29.47	01	0309

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 0
Min Temp <=32: 20
Min Temp <=0 : 0
Heavy Fog : 3
Precipitation >=.01 inch: 7
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)

NOAA, National Climatic Data Center

Month: 12/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	51	27	39	M	30	34	26	0	-	-	BR HZ	M	M	M	0.00	29.62	30.29	4.7	10	6.4	21	080	16	070	01
02	52	46	49	M	44	47	16	0	-	-	RA DZ BR	M	M	M	0.31	29.36	30.02	11.4	22	13.5	32	250	24	220	02
03	56	39	48	M	42	45	17	0	-	-	BR HZ	M	M	M	0.00	29.51	30.16	1.9	15	4.5	16	290	13	290	03
04	63*	44	54*	M	49	52	11	0	-	-	RA BR	M	M	M	0.18	29.32	29.96	13.1	22	13.8	35	240	28	240	04
05	44	25	35	M	24	30	30	0	-	-	SN	M	M	M	T	29.54	30.26	10.4	30	11.9	35	290	30	290	05
06	39	21	30	M	21	27	35	0	-	-		M	M	M	0.00	29.61	30.26	3.1	10	3.5	17	110	14	120	06
07	47	36	42	M	34	39	23	0	-	-	RA BR	M	M	M	T	29.32	29.98	5.5	21	5.8	20	230	16	240	07
08	44	34	39	M	37	39	26	0	-	-	RA FG+ BR	M	M	M	0.16	29.23	29.92	5.7	33	7.3	23	320	18	320	08
09	41	28	35	M	27	31	30	0	-	-	RA DZ PL BR	M	M	M	0.32	29.49	30.12	8.3	08	10.2	30	100	22	090	09
10	52	33	43	M	38	40	22	0	-	-	RA DZ BR	M	M	M	0.24	28.97	29.63	8.2	25	12.5	29	240	23	240	10
11	33	26	30	M	23	28	35	0	-	-	SN BR	M	M	M	T	29.31	30.03	2.9	33	4.3	23	330	18	330	11
12	40	27	34	M	26	31	31	0	-	-	BR	M	M	M	T	29.63	30.34	9.1	24	9.5	29	240	23	240	12
13	43	25	34	M	25	31	31	0	-	-	BR	M	M	M	0.00	29.70	30.36	7.4	21	7.8	24	220	18	220	13
14	44	27	36	M	28	34	29	0	-	-	BR	M	M	M	0.00	29.54	30.23	7.1	25	8.1	23	230	17	230	14
15	38	24	31	M	28	31	34	0	-	-	RA FZFG BR HZ	M	M	M	T	29.53	30.18	7.1	09	7.2	21	080	16	080	15
16	56	37	47	M	38	43	18	0	-	-	RA BR	M	M	M	0.03	29.13	29.75	8.8	17	9.5	25	180	20	190	16
17	48	41	45	M	39	43	20	0	-	-	RA BR	M	M	M	0.19	29.04	29.68	4.0	22	7.2	18	240	14	230	17
18	43	34	39	M	36	39	26	0	-	-	RA BR	M	M	M	0.36	28.94	29.62	10.9	30	12.0	28	300	21	280	18
19	41	30	36	M	30	33	29	0	-	-	BR	M	M	M	0.00	29.28	30.00	4.0	29	5.3	16	270	12	260	19
20	44	29	37	M	28	33	28	0	-	-	RA BR	M	M	M	0.28	29.25	29.85	10.5	12	11.6	31	180	23	100	20
21	44	31	38	M	31	34	27	0	-	-	RA DZ SN BR	M	M	M	0.41	28.64	29.32	9.8	27	13.5	45	310	36	320	21
22	33	29	31	M	22	28	34	0	-	-	SN	M	M	M	T	29.08	29.81	20.1	29	21.1	44	310	30	310	22
23	35	29	32	M	23	28	33	0	-	-	SN UP	M	M	M	T	29.23	29.92	13.2	26	14.2	30	290	24	290	23
24	32	28	30	M	20	26	35	0	-	-	SN BR	M	M	M	0.01	29.33	29.99	4.2	13	8.1	21	080	17	070	24
25	34	26	30	M	25	28	35	0	-	-	SN BR	M	M	M	0.01	29.47	30.21	M	M	4.3	10	060	8	050	25
26	30	24	27	M	22	25	38	0	-	-	SN FZFG BR	M	M	M	0.24	29.47	30.10	M	M	16.7	35	040	28	040	26
27	26	24	25	M	21	23	40	0	-	-	FZDZ SN BR UP HZ	M	M	M	0.06	29.21	29.93	10.1	35	12.0	26	050	21	330	27
28	28	15*	22*	M	19	21	43	0	-	-	FZDZ SN BR	M	M	M	T	29.44	30.13	3.9	27	5.7	21	320	17	310	28
29	29	21	25	M	22	25	40	0	-	-	SN FZFG BR BLSN	M	M	M	0.15	29.19	29.86	5.7	02	9.6	21	330	17	330	29
30	29	20	25	M	17	23	40	0	-	-	SN	M	M	M	T	29.44	30.17	12.5	28	13.8	31	240	25	250	30
31	35	27	31	M	25	29	34	0	-	-	SN	M	M	M	T	29.35	30.00	18.9	24	19.7	41	240	30	240	31
	41.1	29.3	35.2		28.8	32.9	29.5	0.0	<-----Monthly Averages | Totals----->				M	M	2.95	29.33	30.00	3.9	26	10.0	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->											M										

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	916	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: 0.59 Date: 20-21
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

Sea Level	Pressure	Date	Time (LST)
Maximum	30.45	13	0753
Minimum	29.23	21	1437

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 6
Thunderstorms : 0
Min Temp <=32: 22
Min Temp <=0 : 0
Heavy Fog : 1
Precipitation >=.01 inch: 15
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

06/18/2013

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Annual Climatological Summary (2012)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: **NIAGARA FALLS INTERNATIONAL AIRPORT, NY US**

COOP:305841

Elev: 584 ft. Lat: 43.108° N Lon: 78.938° W

Date	Temperature (°F)														Precipitation (inches)									
Elem->	MMXT	MMNT	MNTM	DPNT	HTDD	CLDD	EMXT		EMNT		DT90	DX32	DT32	DT00	TPCP	DPNP	EMXP		TSNW	MXSD		DP01	DP05	DP10
Month	Mean Max.	Mean Min.	Mean	Depart. from Normal	Heating Degree Days	Cooling Degree Days	Highest	High Date	Lowest	Low Date	Number Of Days				Total	Depart. from Normal	Greatest Observed		Snow, Sleet			Number Of Days		
											Max >=90°	Max <=32°	Min <=32°	Min <=0°			Day	Date	Total Fall	Max Depth	Max Date	>=.10	>=.50	>=1.0
1	36.4	21.8	29.1		1105	0	53	31	-1	15	0	9	27	2	3.27		0.62	27	0.0			9	1	0
2	37.1	25.7	31.4		968	0	51	01	9	11	0	6	28	0	1.32		0.44	22	0.0			4	0	0
3	56.5	35.1	45.8		589	1	81	21	13	05	0	1	12	0	1.59		0.52	24	0.0			4	1	0
4	55.1	34.7	44.9		596	3	82	16	25	28	0	0	13	0	3.46		1.82	23	0.0			7	1	1
5	73.7	51.3	62.5		136	63	88	28	37	17	0	0	0	0	1.94		1.41	08	0.0			4	1	1
6	79.7X	59.2X	69.5X				91	20	48	13	2	0	0	0	1.58		0.63	01	0.0			4	1	0
7	85.5	64.7	75.1		0	322	94	17	57	29	4	0	0	0	1.34		0.37	22	0.0			5	0	0
8	81.3	60.4	70.9		6	194	95	04	49	21	3	0	0	0	1.94		0.93	12	0.0			5	1	0
9	71.7	51.6	61.7		151	57	88	03	38	24	0	0	0	0	4.66		1.98	08	0.0			5	3	2
10	59.3	43.5	51.4		415	0	78	25	26	13	0	0	2	0	6.57		1.46	29	0.0			13	4	1
11	45.7	30.5	38.1		798	0	70	12	22	08	0	0	20	0	0.71		0.35	12	0.0			3	0	0
12																								
Annual	62.0*	43.5*	52.8*		4764*	640*	95*	Aug	-1*	Jan	9*	16*	102*	2*	28.38*		1.98*	Sep	0.0*			63*	13*	5*

Notes

(blank) Data element not reported or missing.

+ Occurred on one or more previous dates during the month. The date in the Date field is the last day of occurrence. Used through December 1983 only.

A Accumulated amount. This value is a total that may include data from a previous month or months or year (for annual value).

B Adjusted total. Monthly value totals based on proportional available data across the entire month.

E An estimated monthly or annual total.

X Monthly means or totals based on incomplete time series. 1 to 9 days are missing. Annual means or totals include one or more months which had 1 to 9 days that were missing.

T Trace of precipitation, snowfall, or snowdepth. The precipitation data value will equal zero.

Elem Element types are included to provide cross-reference for users of the NCDC CDO system.

Station Station is identified by: COOP ID, Station Name, State

S Precipitation amount is continuing to be accumulated. Total will be included in a subsequent monthly or yearly value. Example: Days 1-20 had 1.35 inches of precipitation, then a period of accumulation began. The element TPCP would then be 00135S and the total accumulated amount value appears in a subsequent monthly value.

* Annual value missing; summary value computed from available month values.

Attachment F

2012 NIAGARA FALLS STORAGE SITE

- **Radon Flux Results**
- **Site Map**

2012 Radon Flux Monitoring Results[a]

Niagara Falls Storage Site

NFSS Sample ID	Qualifier[d]	Radon-222 Flux (pCi/m²/s)			MDA	NFSS Sample ID	Qualifier[d]	Radon-222 Flux (pCi/m²/s)			MDA
1	U	0.04427	±	0.03548	0.08151	51	U	-0.001725	±	0.02595	0.05445
2	U	0.04767	±	0.02604	0.06987	52	U	0.07699	±	0.03754	0.09918
3	U	0.05067	±	0.02874	0.07845	53	U	0.01204	±	0.0207	0.0525
4	U	0.04201	±	0.02705	0.06896	54	U	0.07274	±	0.03887	0.09683
5	U	0.0283	±	0.02806	0.05773	55	U	0.03087	±	0.02148	0.05463
6	U	0.06388	±	0.03589	0.08468	56	U	0.01383	±	0.02336	0.05691
7	U	0.06422	±	0.03311	0.08397	57	U	0.01482	±	0.02424	0.06227
8		0.07632	±	0.02113	0.0259	58	U	0.014	±	0.02808	0.06298
9	U	0.05629	±	0.03116	0.08451	59	U	0.04575	±	0.0247	0.06698
10	U	0.05468	±	0.02895	0.07701	60	U	0.03631	±	0.02558	0.07057
10-DUP[b]	U	0.04808	±	0.03163	0.07565	60-DUP[b]	U	0.01086	±	0.02311	0.05926
11	U	0.049	±	0.03967	0.07917	61	U	0.0441	±	0.02828	0.07556
12	U	0.05944	±	0.02984	0.07975	62	U	0.002822	±	0.02171	0.04925
13	U	0.0453	±	0.02516	0.06824	63	U	0.002336	±	0.01748	0.04377
14	U	0.04219	±	0.02824	0.06797	64	U	0.03681	±	0.02222	0.06379
15	U	0.04135	±	0.02624	0.0709	65		0.9917	±	0.07141	0.0791
16	U	0.03061	±	0.02198	0.05694	66	U	0.002871	±	0.02242	0.05136
17	U	0.07145	±	0.03433	0.08724	67	U	-0.000587	±	0.01813	0.0454
18	U	0.07931	±	0.04449	0.1062	68	U	0.03008	±	0.01907	0.05397
19	U	0.0593	±	0.03083	0.07743	69	U	0.03062	±	0.02406	0.05964
20	U	-0.0008439	±	0.02608	0.05495	70	U	0.05715	±	0.03253	0.08092
20-DUP[b]	U	0.03126	±	0.02464	0.06264	70-DUP[b]	U	0.01454	±	0.0214	0.05834
21	U	0.0345	±	0.02908	0.06543	71	U	0.03463	±	0.02525	0.06356
22	U	0.02072	±	0.02355	0.06358	72	U	0.05283	±	0.02887	0.0768
23	U	0.03685	±	0.02788	0.06516	73	U	0.2699	±	0.1501	0.4027
24	U	0.03472	±	0.03412	0.07077	74	U	0.06313	±	0.0303	0.08002
25	U	0.08858	±	0.04056	0.1052	75	U	0.01066	±	0.02269	0.05819
26		0.0503	±	0.01965	0.04252	76	U	0.002915	±	0.02516	0.05437
27		0.0624	±	0.01905	0.009847	77	U	0.05301	±	0.02692	0.07168
28	U	0.05355	±	0.03651	0.09097	78	U	-0.006051	±	0.0223	0.04887
29	U	0.04946	±	0.02979	0.06891	79	U	0.0496	±	0.02748	0.07372
30	U	0.08241	±	0.03955	0.09909	80		0.07882	±	0.02198	0.05028
30-DUP[b]		0.08545	±	0.02237	0.04263	80-DUP[b]	U	0.06902	±	0.03535	0.09176
31	U	0.05957	±	0.03142	0.08522	81		0.116	±	0.02992	0.04273
32	U	0.06252	±	0.03264	0.0797	82	U	0.04247	±	0.03029	0.06601
33	U	0.03446	±	0.02644	0.07329	83	U	0.05933	±	0.03299	0.08262
34	U	0.03236	±	0.02309	0.05967	84	U	0.04951	±	0.0305	0.07374
35	U	0.0572	±	0.04147	0.08469	85	U	0.02002	±	0.02657	0.06828
36	U	0.004358	±	0.01645	0.04563	86	U	0.02918	±	0.02939	0.06954
37	U	0.02731	±	0.02266	0.05696	87	U	0.009483	±	0.01999	0.05061
38	U	0.009334	±	0.01968	0.04982	88	U	0.0179	±	0.0279	0.06888
39	U	0.01057	±	0.0225	0.05769	89	U	0.03794	±	0.03713	0.06668
40	U	0.03462	±	0.01883	0.05328	90	U	0.04874	±	0.02889	0.06895
40-DUP[b]	U	0.01274	±	0.02226	0.05401	90-DUP[b]	U	0.03804	±	0.02394	0.06483
41	U	0.04153	±	0.02662	0.07379	91	U	0.05781	±	0.04102	0.08076
42	U	0.002609	±	0.02015	0.04786	92	U	0.002991	±	0.01653	0.04121
43	U	0.05104	±	0.03319	0.08255	93	U	0.01458	±	0.02146	0.0585
44	U	0.02179	±	0.02568	0.06293	94	U	0.05454	±	0.02601	0.07013
45	U	0.03822	±	0.03368	0.07486	95	U	0.01255	±	0.0233	0.05666
46	U	0.05002	±	0.027	0.07483	96	U	-0.01062	±	0.02042	0.04227
47	U	0.001622	±	0.02114	0.04767	97	U	0.008713	±	0.02156	0.05184
48	U	0.04999	±	0.04321	0.08042	98	U	0.06195	±	0.04663	0.08848
49	U	0.0523	±	0.03723	0.07648	99	U	0.01489	±	0.02192	0.05974
50	U	0.008392	±	0.02076	0.04993	100	U	0.04146	±	0.02941	0.067
50-DUP[b]	U	0.04974	±	0.0256	0.06903	100-DUP[b]	U	0.02245	±	0.02821	0.06732

2012 Radon Flux Monitoring Results[a]

Niagara Falls Storage Site

NFSS Sample ID	Qualifier[d]	Radon-222 Flux (pCi/m²/s)			MDA	NFSS Sample ID	Qualifier[d]	Radon-222 Flux (pCi/m²/s)			MDA
101	U	0.05902	±	0.03423	0.09035	151	U	0.005865	±	0.02074	0.05224
102	U	0.01263	±	0.02143	0.05435	152	U	0.02089	±	0.02267	0.06624
103	U	0.01152	±	0.02616	0.06409	153	U	0.04279	±	0.03069	0.07639
104	U	0.03764	±	0.02179	0.06037	154	U	0.05575	±	0.0335	0.09142
105	U	-0.001028	±	0.01849	0.04318	155	U	0.06978	±	0.03366	0.0874
106	U	0.01552	±	0.02191	0.05965	156	U	0.05883	±	0.03543	0.08114
107	U	0.05645	±	0.04096	0.08947	157	U	0.003006	±	0.02192	0.05556
108	U	0.02679	±	0.02048	0.05729	158	U	0.009919	±	0.02621	0.06086
109	U	0.01465	±	0.02155	0.05874	159	U	0.03473	±	0.03862	0.06931
110	U	0.00467	±	0.01731	0.04338	160	U	0.03437	±	0.03324	0.08527
110-DUP[b]	U	0.004674	±	0.01732	0.04342	160-DUP[b]	U	0.00636	±	0.01952	0.05404
111	U	0.02847	±	0.02606	0.0615	161	U	0.05099	±	0.04052	0.08567
112	U	0.008357	±	0.02188	0.056	162	U	0.04099	±	0.03044	0.07121
113	U	0.04743	±	0.02612	0.06986	163	U	0.03636	±	0.03829	0.0779
114	U	0.001209	±	0.01514	0.04216	164	U	0.02459	±	0.03534	0.08494
115	U	0.01912	±	0.02058	0.05501	165	U	0.03506	±	0.0245	0.06789
116	U	0.04449	±	0.02441	0.06612	166	U	0.01858	±	0.02285	0.06104
117	U	0.01487	±	0.02188	0.05963	167	U	0.04152	±	0.02698	0.07638
118	U	0.04518	±	0.02523	0.06646	168	U	0.01875	±	0.01918	0.05556
119	U	0.005617	±	0.02333	0.05396	169	U	0.033	±	0.03353	0.08493
120	U	0.07483	±	0.03731	0.09891	170	U	0.0109	±	0.01779	0.05502
120-DUP[b]	U	0.04327	±	0.02719	0.07535	170-DUP[b]	U	0.0146	±	0.02706	0.06947
121	U	0.02982	±	0.03169	0.06203	171	U	0.07547	±	0.03683	0.095
122	U	0.0171	±	0.02749	0.06339	172	U	0.04037	±	0.02473	0.06852
123	U	0.01548	±	0.01981	0.05299	173		0.09917	±	0.0287	0.06642
124	U	0.01467	±	0.02159	0.05885	174	U	0.06963	±	0.03739	0.09628
125	U	0.0135	±	0.02073	0.05257	175	U	0.107	±	0.05536	0.1257
126	U	0.03228	±	0.02054	0.05747	176	U	0.06285	±	0.03799	0.09099
127	U	0.02126	±	0.02909	0.07199	177	U	0.06235	±	0.0453	0.0979
128	U	0.03206	±	0.02931	0.07747	178	U	0.07086	±	0.04497	0.1141
129	U	-0.02856	±	0.02002	0.01952	179	U	0.1047	±	0.04569	0.1119
130	U	0.03913	±	0.02776	0.07129	180	U	0.05221	±	0.04002	0.08811
130-DUP[b]	U	0.05585	±	0.03108	0.08257	180-DUP[b]	U	0.01485	±	0.03493	0.07707
131	U	0.007666	±	0.02696	0.06547	181[c]	U	0.03854	±	0.02834	0.07097
132	U	0.02722	±	0.01988	0.05706	182[c]	U	0.05149	±	0.03314	0.08903
133	U	0.04053	±	0.02847	0.07744	183[c]	-	-	±	-	-
134	U	0.04519	±	0.02566	0.07052	Average background	U	0.04502	(pCi/m²/s)		
135	U	0.0608	±	0.04352	0.09247						
136	U	0.05896	±	0.03344	0.09128						
137	U	0.09424	±	0.04627	0.09705						
138	U	0.03283	±	0.0309	0.07435						
139	U	0.03656	±	0.03026	0.08278						
140	U	0.03611	±	0.0229	0.06407						
140-DUP[b]	U	0.009592	±	0.02373	0.05707						
141	U	0.01628	±	0.02396	0.0653						
142	U	0.03664	±	0.02817	0.06997						
143	U	0.0179	±	0.02779	0.07139						
144	U	0.04998	±	0.02679	0.07311						
145	U	0.0254	±	0.02496	0.06616						
146	U	0.02135	±	0.02606	0.07055						
147	U	0.03874	±	0.0292	0.07297						
148	U	0.03445	±	0.02896	0.06277						
149	U	0.04274	±	0.02655	0.07515						
150	U	0.00959	±	0.02372	0.05705						
150-DUP[b]	U	0.04824	±	0.03449	0.08087						

IWCS	Value	Units
Average[e]	0.04245	(pCi/m²/s)
High[f]	0.99170	(pCi/m²/s)
Low	-0.02856	(pCi/m²/s)

UTE: The EPA Standard for Radon-222 Flux is 20 pCi/m2/sec

a. Radon-222 flux was performed on July 30-31st, 2012

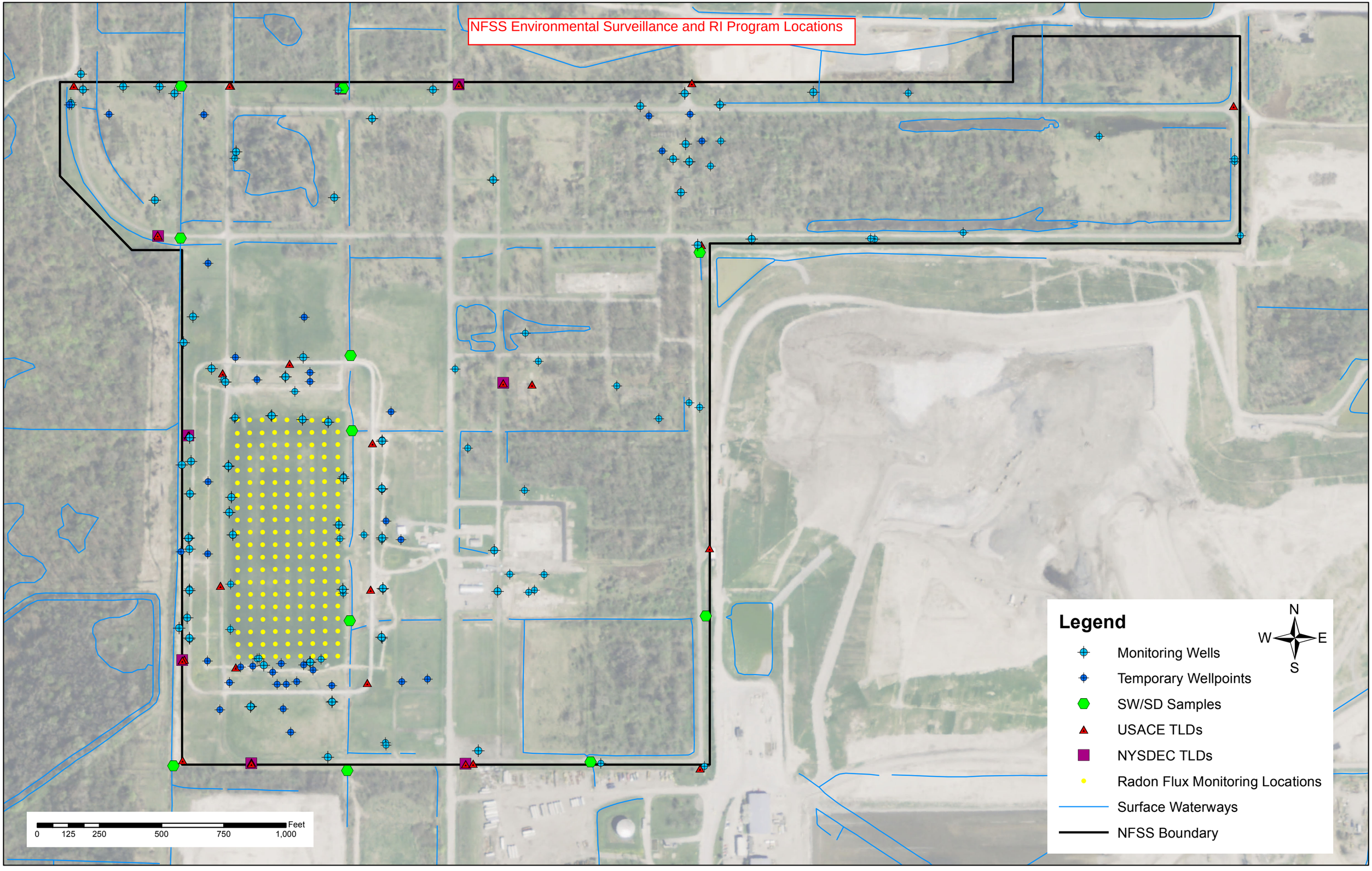
b. Every 10th canister is counted twice as a quality control (QC) duplicate to evaluate analytical precision.

c. Background: 181-Lewiston-Porter Central School
182-Balmer Rd. (CWM Secondary Gate)
183-Lewiston Water Pollution Control Center

d. Validated Qualifier: U - indicates that U analyte was detected (non-Detect).

e. Average of all values (detects and non-detects)

f. Highest detectable finding.


NFSS Environmental Surveillance and RI Program Locations
Legend
Monitoring Wells
Temporary Wellpoints
SW/SD Samples
USACE TLDs
NYSDEC TLDs
Radon Flux Monitoring Locations
Surface Waterways
NFSS Boundary
N
W
E
S
0
125
250
500
750
1,000
Feet